NATIONAL PETROLEUM NEWS

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Service To Readers Brings Recognition

THE greatest asset a business paper can have is its standing in its own industry for publishing the news of that industry accurately, promptly and from a sane and progressive viewpoint. It secures that standing by constantly furnishing a faithful service to its readers in keeping them at all times fully informed as to new developments in the business which brings them their bread and butter.

There was a case in point within the last few weeks which illustrates the degree to which **National Petroleum News** is performing this service for the oil industry.

In the middle west jobbing territory there are several promotion companies, operating on a purely stock sales basis, selling stock in small towns of Iowa, Illinois and other states and installing service stations. Their activities are a reflection on the established companies in this district. Many inquiries developed in the jobbing industry as to the nature of their operations.

Among all the oil papers **National Petroleum News** is the only one which has investigated the activities of these companies for the purpose of acquainting its readers with the full details of their plan of operation. A staff man from its Editorial Department spent the necessary time at the points where they are operating to learn the facts.

Here was a service to its readers which filled a real want. It is only one illustration of why **National Petroleum News** stands first among oil trade papers.

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Industry Will Fight Order To Finish

Staff Special
CHICAGO, Nov. 11

THAT the oil industry should fight to a finish the rules promulgated by Colonel Dunn in his circular B. C. L 180 was the consensus of opinion at the representative meeting of the industry called to order this morning in the Elizabethan room at the Congress Hotel.

Unalterable opposition to any compromise which would be regarded as an admission by the industry that the charges made in the Bureau of Explosives circular were founded on fact was made unmistakably clear by several speakers; fireworks developed early in the meeting. Judge C. D. Chamberlin, general counsel of the National Petroleum Association, offered a resolution similar to one he had offered at the preliminary conference of the American Petroleum Institute in New York, by which he sought, as he said, to reach the fundamental basis of the whole situation.

His resolution stated emphatically that the declaration contained in Colonel Dunn's statement of October 1 constitutes an indictment against the oil industry to which it emphatically pleads not guilty.

"I want the record to be clear," said Judge Chamberlin, "not only as to how the industry feels on the subject, but more particularly as repudiating the indictment and on that indictment are based all the rules contained in Circular B. C. L. 180."

R. L. Welch, secretary of the American Petroleum Institute, who was unanimously made chairman of the meeting on motion of Judge Chamberlin, asserted that Colonel Dunn was in the city, but was not present at the meeting. Mr. Welch said the colonel had not been invited because it was desired to give representatives of the oil industry the fullest opportunity to express their real feelings, adding that the colonel would be pleased to join the meeting at any time if invited, or to meet a committee named by the oil men. The motion of Judge Chamberlin was unanimously adopted.

W. E. MacEwen, secretary of the National Refining Company, of Cleveland, took occasion after the judge had offered his motion to back it heartily, declaring with great vigor that the charges made by Colonel Dunn against the oil industry were grossly untrue, as illustrated in the experience of his own company, which has operated for some 40 years with practically all its loading racks violating these proposed rules, with never an accident. Fred W. Lehmann, Jr., secretary of the Western Petroleum Refiners' Association, was another vigorous opponent of the rules given out by the Bureau of Explosives in all their phases, stating his position bluntly at the start as spokesman for the western refiners. Mr. Lehmann said:

"My attitude is not one of cooperation, but of opposition from the beginning to the end. I do not like the manner in which the dying railroad administration has acted in this matter. I think the railroad administration should have died decently and gratefully, leaving behind it as little as possible to be remembered after it passes out. I don't like the general theory based on Col. Dunn's accusation which he calls a fact that the oil industry in the past has been inexcusably careless. His indictment is either true or not true. I deny it emphatically. If it is true that the oil idustry has located its loading racks and unloading points too close for safety to the railroad tracks, of course we will have to move them, but such is not the fact, and Colonel Dunn has produced no evidence to show that accidents in the past have been caused by the location of loading racks.

"We should fight the order on the theory on which it is made. If it is not true we should not move, and if our locations are bad, moving the racks a distance of 50 feet would not make any significant difference as it is true that the gasoline vapor can travel as far as 150 feet."

An effort was made to smoke out the railroad men, of whom there were many present at the meeting, as to their attitude on the loading rack order. Two of them who spoke, however, stated that they were, of course, government employes, and did not know what position they should take on the matter.

Clifford Thorne, general counsel of the American Independent Petroleum Association, brought up the point that no rule should be approved by the industry which provided different standards of construction for new and existing loading racks and tank installations.

"If we submit now to a double standard for construction there is nothing to hinder further changes being imposed on us in the future with that fact for a precedent," he said.

Secretary Welch opened the meeting with a general discussion of the toll of accidents taken by industry in various lines. He cited Colonel Dunn's own figures covering a list of accidents in transportation of gasoline during the last nine years which numbered 38. These accidents resulted in the deaths of 68 people, with injury to some 600 and a property loss of a little more than a million dollars.

As against this he showed deaths and injuries resulting from railroad accidents, citing figures to prove that more people are killed and injured every hour by the railroad than are killed and injured in a year by the oil industry and he cited various other industries which reduces almost to absurdity the damage to life, limb and property resulting from gasoline transportation when it is considered that there are some 12,000 loading racks and unloading points in the country, on Mr. Welch's rough estimate, 95 per cent of which violate the proposed rules.

The tentative suggestions worked out by representatives of the oil industry at preliminary conferences with the American Petroleum Institute officials were offered for consideration at the meeting, Mr. Welch explaining that it was not the intention in any way to impose them on the industry, but simply furnish a basis from which to work.

The specific questions considered at the conference were those put up to the oil industry by Col. Dunn at the time he allowed a suspension of 45 days before making B. C. L. 180 operative. The questions were:

(a) At what minimum distance from the nearest track over which engines move should new loading racks be located for casinghead gasoline, casinghead blends and refinery gasoline, respectively?

(b) What changes, if any, should be made in the answers to the above question when dealing with unloading racks?

Answer 1. New locations for the loading and unloading of all gasoline having a vapor tension of eight pounds or more shall be placed at a minimum of fifty feet from main line tracks where physical conditions do not permit a greater distance and a maximum distance of one hundred feet shall be required where physical conditions permit; where old or new installations are placed within seventy-five feet of main line tracks a retaining wall, dike or earthen embankment shall be placed between the installation and the main line track, so constructed as to effectually prevent liquids from flowing on to the main line track in the event of accident.

In the loading and unloading of gasoline having a vapor tension of eight pounds or more, the tank car and the storage tank shall be so connected as effectually to permit the flow of gases from the tank car to the tank; and the dome of the tank car shall not be open when pressure exists. The apparatus used in this venting method shall be similar to that now in use in the industry, and consisting of a pipe line or other satisfactory method of com-

(Continued on Page 38)

Electricity Surpasses Steam For Drilling If Power Is Near

Staff Special

EL DORADO, Nov. 10

ELECTRICITY is by far the cheapest power for drilling in oil fields near high-power electric transmission lines.

This is the conclusion of engineers of the Empire Gas & Fuel Company, who carefully tabulated the results of the drilling of Stokes No. 27 in the Eldorado field, completed recently. The actual saving over the use of steam for power was $3,655.20.

The result of the actual drilling of the well demonstrated that some of the chief objections that have been made by experienced oil men against the use of electricity are unfounded, according to the statement of the men in direct charge of the work. In the first place, contrary to general belief among operators, veteran drillers were greatly pleased with the new method.

It was found in this particular well that an extra man in the drilling crew was unnecessary. In fact, the crews very soon became so familiar with the electrical machinery that they handled it practically without assistance from electricians. In the matter of elasticity, where many expert field men had predicted that electric equipment would fail to measure up to the requirements of a drilling power, the motor showed itself very satisfactory. In fact, by proper arrangement of the controllers, it was found possible to get 80 speed variations. Only rated at 75 h. p., the motor was found capable of developing as high as 150 h. p. for two or three minutes at a time and was equal to all the sudden strains put upon it.

Saving In Power Cost

As one item of saving in operation, the engineers point out that the total cost of power for drilling the wells was but $378, whereas the power cost of drilling by steam would have been around $2,500.

Altho it has been generally known that the test, which was watched by oil men all over the Mid-Continent field, was successful in every particular, the report of S. B. Severson, head of the electrical engineering department, giving all the details as to cost, has just been made public. The Stokes well was the first to be drilled in Butler county by electricity, altho hundreds of Empire wells have been pumped for several months by motor. It was started August 1 and was drilled in September 21. The lost time was due to installing a second bull wheel, band wheel and sand reel.

"During the past, attempts have been made to use electric motor equipment for drilling deep wells," says Mr. Severson, "but it has been only within the last year or two that much success has been attained. A number of wells have been drilled with electric motor in various parts of the world. The question of motor has been readily solved, but the perfect control necessary to satisfy all conditions in the drilling operation has been difficult to obtain.

"Results obtained in the drilling of Stokes No. 27 and a subsequent well show conclusively that a combination of motor and control apparatus has been perfected to a degree that causes even experienced drillers to say electric drilling equipment is superior to steam."

HIGH SPOTS IN DRILLING OF STOKES NO. 27 WELL

Saving over steam drilling estimated $3,655.20.

Drilling crew quickly learned to handle the equipment and for the most part operated the machinery independently of an electrician.

Motor showed elasticity to the extent that 80 speed variations were possible.

Three days and fifteen hours saved compared with the time necessary when drilling with steam, in putting the well on the pump.

Time saved in getting the well on the pump meant saving of $1,305 worth of oil as the well is a 160-barrel producer and oil worth $2.25 a barrel.

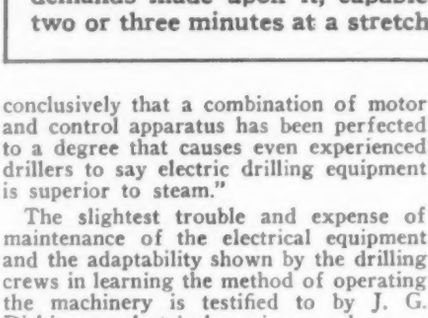
Motor, rated 75 horsepower, proved equal to all the overload demands made upon it, capable of developing 150 horsepower for two or three minutes at a stretch.

The slightest trouble and expense of maintenance of the electrical equipment and the adaptability shown by the drilling crews in learning the method of operating the machinery is testified to by J. G. Dickinson, electrical engineer, who was in immediate charge of operation at the Stokes well and who made a general report. Mr. Dickinson says:

"The maintenance of the electrical drilling equipment on Stokes No. 27 consisted principally of attention to the contact fingers and segments in the main controller, due to the fact that these parts become pitted by the arcing caused in reversing the motor, and prevent the fingers from making a good contact. This condition would not require the constant attention of an electrician, but could be handled by the regular inspector on his daily visit, and in the event of more serious trouble, the trouble-man of the electrical department could be summoned.

"The driller and tool dresser became familiar enough with the electrical equipment during the test to be practically independent of outside assistance, so that electrical drilling equipment will not require the services of an extra man.

"On two or three occasions fuses were replaced, but at no time was there any serious electrical trouble. The principal delays incurred during the tests were caused by rig equipment and on one occasion by the shortage of 6⅝ casing. These delays were unavoidable.



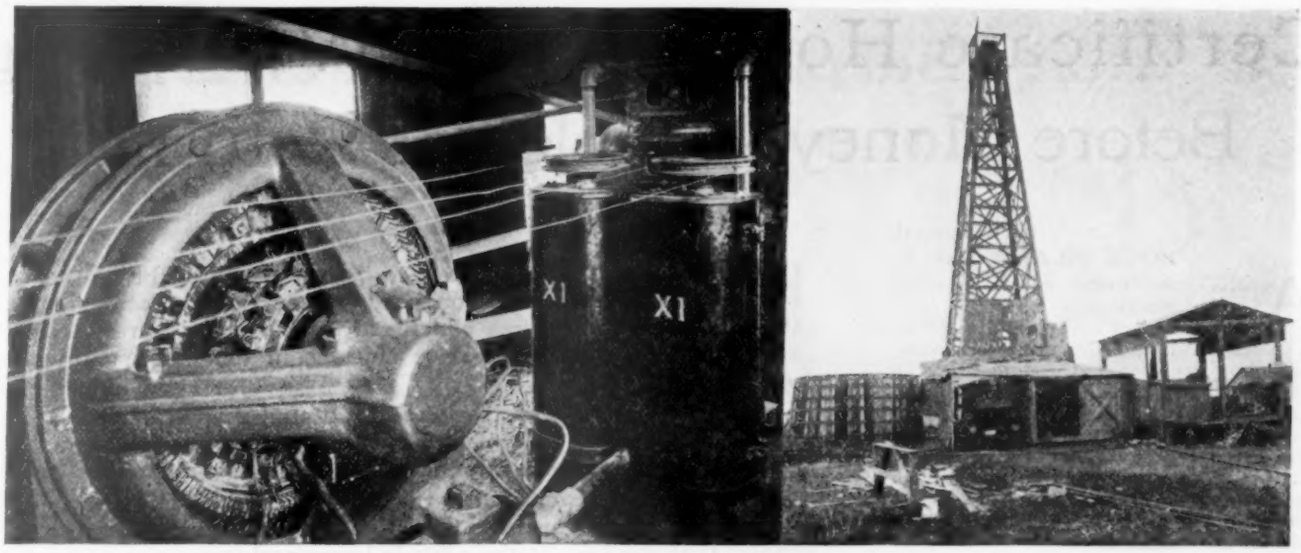
J. G. Dickinson

Drilled In 34 Days

"While the operations during the test covered a period of sixty days, the actual drilling was accomplished in thirty-four drilling days and the only water required for the test was the water used in the hole for mixing the drillings.

"The controllers were so arranged that they provided the motor eighty different speed variations. The controllers were operated by steel cable lines from levers on the headache post. The weight of the motor was approximately two tons.

"The ammeter was located in the derrick close to the headache post and showed the driller the amount of power he was using. During drilling operations in hard lime where the tools got a good rebound, it required 50 to 60 amperes or from 30 to 35-horsepower. For drilling in shale, where the bit muddied up, the ammeter showed about 60 to 70 amperes, or about 35 to 41 horsepower. In pulling tools out and in bailing water it usually required about 100 to 125 amperes, or the equivalent of about 57 to 75 horsepower. As the motor was 75 horsepower and will stand a load of 100 per cent continuously, a 25 per cent overload for two hours and a



At left, close-up view of motor showing starting commutator; at right, the Stokes No. 27 well near Eldorado, Kans.

100 per cent overload for two or three minutes, there was ample reserve power for any emergency that might occur.

"By changing the tops in the transformer bank the voltage was raised so that while drilling it would be about 440 volts. In that way the motor received the rated voltage during the operation, which was nearly continuous.

"During the test, tachometer readings were taken while drilling in order to determine the 'kick' on the line when using a motor as compared with steam. Several tests were made on a neighboring steam well and on the motor well, but there was not enough difference to be noticed, so the 'kick' on the line may be taken as identical on the two outfits.

Difficult Drilling Encountered

"A perusal of the daily report will show that this well had more to contend with than the average well. There was much more bailing than usual and this in turn caused considerable rig trouble. The bull wheel, hand wheel and the sand reel had to be replaced. This, with other difficulties, caused many delays that otherwise wauld have been avoided.

"Water and caving brought up the cost per foot drilled to a higher figure than the average for electric drilling in California.

"The many advantages of electricity for drilling have been realized on this well from the start. The saving in cost includes the building of one house that will suffice for both drilling and pumping without a change. The initial cost of drilling motor and control is less than the cost of boiler and engine. The cost of drilling by electric power is less than with steam. The water consumption is much less. There is almost no fire risk and it is not necessary to move the motor away from the rig if gas is encountered. The depreciation of the electric equipment is very small and repair parts are interchangeable. The motor used for drilling is supplied with screws at the bottom of the end shields, so that reasonable wear in the bearings may be taken up and thus the air gap may be kept balanced on all sides. With good oil in the bearings, it should not be necessary to do this oftener than once in eight months."

The cost of installation was computed by T. R. Cronin, field foreman, who also estimated the cost of removing the drilling motor to Hess No. 16, where another well now is being drilled. In his report he says:

"The installation of the drilling motor was an experiment and particular care was taken in making it so that nothing, as far as we could see, woud tend to make it a failure. The motor equipment consists of one 75 horsepower, 3-phase, 60-cycle, 440-volt, type M motor, with base and pulley mounted on a concrete block; 14 sets of grids, one primary and one secondary controller, and one type K-20, 250-ampere circuit breaker, mounted on skids; one panel board, consisting of one 250-ampere, 500-volt, 3-pole, single-throw switch with cabinet; one 100-ampere, type D6, watt-hour meter; one series transformer for a 250-ampere indicating meter which is mounted inside the rig in a convenient place, so that the operator can at all times judge the load he is carrying on the motor. For 'safety first,' we installed a small knife-switch on the headache post and connected it in series with the no-voltage release, so that in case of trouble or accident the operator could immediately shut off the power by opening it. For controlling the motor from the derrick, we installed two single trees mounted on the headache post with steel cable lines direct to both controllers.

"The cost of this entire installation was $2,955.99. After moving this outfit to Hess No. 16 we found that the salvage amounted to $2,188.96, making the total of the drilling installation amount to $768.03.

"This total cost of $768.03 includes the house, concrete forms and all labor. This cost can be spread over the installation of the pumping equipment, as the house and forms were of our standard design to fit both drilling and pumping equipments.

Install Pumping Motor

"At 8:30 o'clock in the morning of September 29, we shut down the well to remove the drilling equipment to Hess No. 16, and install the 30 horsepower, 60-cycle, 440-volt pumping motor on the Stokes well.

"The usual time required to put a well on the pump when it has been drilled by steam is four days, this being a very close estimate, as it usually requires a few hours over the four days. The time used on the Stokes No. 27 was exactly eight hours, or a saving of three days and fifteen hours pumping. Since this well is estimated at 160 barrels production per day, this would give us a saving at $2.25 per barrel or $1,305. If gas engine had been installed, the loss in production woud have been at least double, or approximately $2,609.78."

The opinion of the drillers on the job as to the practicability of drilling by motor is reflected in the following statement of Driller William Rush:

"Having worked on Stokes No. 27 from start to finish, my candid opinion is that electric power for drilling is great," Rush said. "From the standpoint of economy and reliability, it has no equal. In spudding, drilling, bailing water, pulling tools or landing casing, the motor gave us not the slightest difficulty.

"The motor will bail faster and longer than any steam power I ever used. It takes good 'toolie' to keep 120 pounds of steam on a boiler when bailing down a hole full of water after casing, or when carrying ten to fifteen bailers while drilling. With the motor it was easier to carry that quantity than to carry six or ten bailers with steam.

"Steam will start tools from the bottom of the hole faster than the motor, but when half out it will begin to lag and any driller will tell you that many a time on a windy day, or with bad oil, they have had to wait for more steam before pulling

(Concluded on Page 31)

Electrical Equipment Used In Drilling Stokes Well

1 75-horsepower 3-phase, 60 cycle, 440-volt type M motor with base and pulley block mounted on concrete block

14 sets of grids.

1 primary controller.

1 secondary controller.

1 type K-20 250 ampere circuit breaker mounted on skids.

1 panel board consisting of 1,250 ampere. 500-volt, 3-pole single throw switch with cabinet; 1 100-ampere type D-6 watt-hour meter; 1 series transformer for a 250-ampere indicating meter.

1 knife switch.

Cost entire equipment, $2,955.99.

Salvage, $2,188.96.

Actual cost of drilling installation for Stokes well, $768.03.

Certificate Holders May Wait Long Before Money, Doubled, Is Returned

FURTHER details are herewith given regarding the methods of financing and operation used by several promotion companies in Iowa and Illinois which are working on a purely stock basis, installing gasoline service stations in the country towns there.

The facts given were gathered by a staff man from the Editorial Department of National Petroleum News, who made a first-hand investigation of the activities of these companies.

The first article, carried in the November issue, showed these companies are without exception promotion enterprises pure and simple; that the men at their heads know nothing of the oil business; and that the companies lack the necessary distributing equipment to properly and economically serve their stations.

Oil companies desiring reprints of this series of articles, which may be used to acquaint their agents and salesmen fully with the plan of operation of these promotion companies, should notify the Circulation Department at once.—Editor.

Staff Special

ROCK ISLAND, Nov. 10

AMONG the plans of Consumers Service Stations, Inc., is the construction of a compounding plant at Rock Island, where the company will blend its own lubricating oils. It was stated the cost of the property and construction of the building would amount to $25,000. This plant will serve lubricating oils, it is planned, to all the service stations the company is operating. Until that plant is erected the company will buy its lubricating oils on the market.

General Manager Wharff also stated the company intended to erect bulk storage stations at advantageous points to serve its various service stations. Its plan for hauling stuff from such storage accessible to railroad sidings to its service stations, as described by Mr. Wharff, is to furnish truck or wagon tanks to local men who will furnish chassis or wagons and will themselves haul the stuff to the station. The company, as before stated, believes this service can be furnished by the man doing the hauling for around a half cent a gallon. The man who does the hauling in a town is also to handle the marketing of oils to farmers in the community where the station is operating, as a delivery business of this character is worked up by the company later. The company believes there should be a good margin in this business for the man doing the hauling.

The company has designed standard types of service stations of the kind used by many oil companies which can be put up at very moderate costs. Their plan is to secure an option on a likely service station site in a community and then send their salesmen in to sell their "certificates of operation." In some cases the land is bought outright and in some cases leased for long terms. The stations they now have in operation are not large enough to allow the handling of a very large stock of accessories.

Consumers Service Stations, Inc., has one man in its employ who has had experience in the oil marketing industry. This individual is J. A. McCulloch, who was formerly connected with the Cedar Rapids Oil Company at Cedar Rapids, Ia. His title is "General Director of Operations" for the company. His connection with the company is recent, and he is soon to take over the actual buying of stuff at the refinery and superintend its distribution to the various service stations.

The Balance Sheet

Consumers Service Stations, Inc., has issued a balance sheet as of October 1, in which quick assets are shown to be around $288,000, of which $173,154 is cash and $84,100 Liberty bonds. Station equipment and merchandise is carried as of that date at $28,503, automobiles at $3,729 and construction tools and equipment at about $800. Real estate, land and buildings is carried at around $85,000 and leases and locations at $35,000.

To offset the water in the balance sheet thru carrying the outstanding capital stock at par the company has charged up about $179,000 thru items for trade investments, organization, expense, copyrights, trade names, patents, rights, plans, privileges, etc.

The balance sheet also fails to carry as such on the liabilities side any item for "operation certificates" already sold, altho in good business practice it should carry this item at twice the face value of the certificates, since it has agreed to pay back to certificate holders twice the amount invested in them. On the assets side it should carry also the amount already paid back to certificate holders thru the actual operation of stations.

The balance sheet in full as issued by the company is as follows:

ASSETS

Cash on hand and in banks	$173,154.08	
Liberty bonds	84,100.00	
Bonds and stocks	100 00	
Accounts receivable	6,826.36	
Notes receivable	23,650.00	
Total cash bonds and receivables	$287,830.44	
Station equip. and merchandise	28,503.18	
Automobiles	3,728.86	
Construction tools and equipment	801.96	
Total equipment	$ 4,530.82	
Total current assets.		$320,864.44
Real estate—land	$ 19,886.70	
Real estate—Building	65,662.80	
Leases and locations	34,916.37	
Total real estate, etc.	$120,465.87	
Trade Investments	71,838.02	
Organization exp., copyrights, etc., (including bldg. exp. undistributed)	57,211.29	
Rights, plans, privileges, trade names, patents, etc.	50,000.00	
Total	$179,049.31	
Total fixed assets		$299,515.18
Prepaid rents	$ 2,083.00	
Prepaid insurance	495.40	
Total prepayments	$ 2,578.40	
Total assets		$622,958.02

LIABILITIES

Notes payable	$ 49,650.00	
Accounts payable	18,276.54	
Total liabilities	$ 67,926.54	
Cap. stock outstanding.	273,550.00	
Surplus account	281,481.48	
Total capital	$555,031.48	
Total liabilities and capital		$622,958.02

Officers of the Consumers Service Stations, Inc., are as follows:

President, F. W. Bender, who is also secretary of the Rock Island Chamber of Commerce. He has been engaged in civic improvement work in this capacity for some time.

Vice president, P. E. Hawkins. He is also vice president of the Crosby-Chicago Company, Chicago. He has been engaged in advertising and publicity work.

J. C. McCoy is another vice president. He has been interested in the real estate and general investment business in Monmouth, Ill.

E. M. Wharff is also vice president. He is a brother to the Ralph Wharff who is general manager and general director of the company's affairs. E. M. Wharff is also treasurer of the Reserve Trust Company of Rock Island, which owns stock in the service station company. He was formerly engaged in va-

rious lines of engineering work in New York.

Treasurer, E. C. Michael, formerly an Illinois banker for some eighteen years or so.

Secretary, C. S. Goodwin. He is secretary of the Reserve Trust Company and has been connected with two firms of book publishers.

Directors of the company include, in addition to these, J. W. Clendenin, attorney and postmaster of Monmouth, Ill.; James Pollock, president of the Cambridge State Bank, Cambridge, Ill., and president of the Henry County Insurance Company, also of Cambridge; E. F. Broders, vice president of the People's Trust & Savings Bank, Davenport; F. A. Maurer, vice president of the Union Savings Bank, Wilton, Ia.; T. K. Simpson, formerly in the typewriter agency business and now given the title of "Director of Extension Work;" W. L. Bywater, a practicing physician in Iowa City, Ia.; H. G. Barrett, secretary of the Alfacorn Milling Company, St. Louis; R. H. Booth, secretary and general manager of the Driffill Printing Company, of Rock Island, and Ralph Wharff, general director of the company and also president of the Reserve Trust Company of Rock Island.

Headquarters of the Consumers Service Stations, Inc., at Rock Island, Ill.

Its First Station

Out at Le Claire, Ia., an old river town 15 miles or so from Rock Island, the Consumers Service Stations, Inc., is operating the first service station it opened. Le Claire is a town of about 600 population now. The company sold 23 operation certificates there, thus raising a sum total capital to operate the station of $6,750.

It has been operating this station since last June. It has no storage at this point outside that at the service station itself, and what stuff it sells there is trucked down from Davenport by a local oil company. The company sells two grades of gasoline; what it calls "high grade test" for 28 cents, and a standard grade at the service station market, which happens to be 23½ cents at this point.

Holders of "operation certificates" at Le Claire have not fared so very well to date, but the company considers this station as one where the chances for real profitable operations are poorer than at any other of its towns and a visit to Le Claire would bear this statement out. The competing gasoline pump here is run by a man who has the auto repairing work of the community and the motorists of the town and its vicinity, having formed the habit of visiting his place, find it hard to patronize the new station. Even some of the holders of "operation certificates" still buy their gasoline and oil at the old stand, village gossip has it.

Then, too, it must be admitted the station at Le Claire has not been all that might be expected in the point of management by the local agent for the company. For a time the company employed a man who had conducted a business of another nature across the street. This individual, it is said, frequently neglected trade at the station, particularly if his own business affairs were pressing, and the patrons of the station, who found themselves compelled to wait to be served, began returning to the old competing station.

About a month ago the Consumers Service Stations, Inc., made a change in its policy at Le Claire, however, and hired a young man to give his entire time to their business there. Since this was done business has been returning to the station. Under this new management the station had its best week so far recently when 250 gallons of gasoline were put out thru its pump.

The attendant, in a burst of confidence and pride, disclosed that one Sunday late in October was the best day the station has had since it had opened. On that memorable occasion it had sold 150 gallons of gasoline.

Partly due to poor management the returns to the purchasers of "operating certificates" in Le Claire have not been great. According to the statement of one, he received from the local bank 79 cents as his refund from July operations of the station; from August operations he received 74 cents; from September's business he received 48 cents, a total to November 1 of $2.01 return on $250 invested. Holders of "operation certificates" there believe it will be some time before their $250 is returned to them plus the $250 additional their agreement with the company calls for.

The company states it will refund the entire amount of each holder's investment if any station is closed up or is not constructed and put in operation after funds have been raised locally.

Another company which is operating on about the same plan as the Consumers Service Stations, Inc., but which makes no claim as yet to be actually operating stations at any towns is the Community Service Station Company of Davenport.

This company has its headquarters in two small offices in the Security building, but it has about 38 salesmen out, according to its own statement, engaged in selling certificates similar in nature to those put out by the Rock Island company. Officials of the company stated it had closed a number of towns in Iowa and plans to begin the actual construction of stations within the next ten days. It hopes to have 100 stations in operation within a year. Officials of the company state it will buy its land outright and will handle only gasoline and oils, and no auto accessories. D. R. Ashby, secretary of the company, stated the company already had contracts with refiners for its needs for the first year's business.

The Community Service Station Company is incorporated in South Dakota for $1,000,000 half preferred and half common. Of this authorized capitalization, preferred stock, par value $100, to the amount of $125,000, is outstanding and the same amount of common. This stock was practically all subscribed for in the town of Davenport, it was stated.

The certificates this company puts out to the small town farmers and merchants are the same in value as those issued by the Rock Island company.

Service station at Le Claire, Ia., installed last June by the Consumers Service Stations, Inc. Operation certificate holders here from July, August and September operations were paid back $2.01 each on their $250 investment

Officers of the Community Service Station Company of Davenport are as follows:

President, L. J. Yaggy, who was for 15 years cashier of the First National Bank at Davenport.

G. Decker French, vice president. He is head of the Central Engineering Company of Davenport, engaged in general construction work, and is respectfully referred to by the natives as the son of Col. G. Watson French.

Treasurer, A. J. Faerber, who is in the life insurance business in Davenport.

Secretary, D. R. Ashby, who was formerly with a starch manufacturing concern of Cedar Rapids.

Directors include the above and Richard R. Lane, the owner of certain business properties in Davenport; W. L. Mueller, engaged in the wholesale coal and lumber business there, and F. W. Hurd, who is directing the sale of securities with Treasurer Faerber.

This company has no one who is in any way familiar with the oil marketing business. It plans to secure its wholesale storage plants and other necessary distributing equipment after it has financed, constructed and is operating its service stations. It has designed standard types of service stations to cost $6,000, $7,500, $9,000 and $12,000, the type chosen depending on the size and needs of the town.

Money raised from sales of certificates, as is the case with the Rock Island company, is deposited in the local bank until the station is completed and in operation. Salesmen who are placing the securities in the small towns receive 15 per cent of the funds from their sales for their own return.

New Standard, N. Y., Director and Secretary

By Special Correspondent

NEW YORK, Nov. 10.—Frederick S. Fales has been elected a director and Howard E. Cole secretary of the Standard Oil Company of New York, succeeding the late Richard C. Veit, who had served both as director and secretary. At a subsequent meeting of the directors of the Standard Transportation Company, a subsidiary of the New York company, Mr. Fales was chosen as president, the office formerly held by Mr. Veit.

Mr. Fales, soon after being graduated from Amherst College in 1896, spent seven years as purchasing agent in the Chicago stockyards of Libby, McNeill & Libby, becoming associated with the Standard Oil Company of New York in 1903. He gave several years of his activities to the Greenpoint refineries and was called to 26 Broadway as assistant to Herbert L. Pratt. Mr. Fales became assistant manager of the company's East River refineries and chairman of the manufacturing committee, having maintained the latter place for the last five years. H. C. Smart will succeed Mr. Fales as chairman of the manufacturing committee, having been active in this field for several years.

Mr. Cole has devoted a good part of his Standard Oil activities to the foreign trade interests. One of his most distinguished services was his work as general manager of the Japanese field of operations. He has been a member of the Standard directorate for five years.

Colonel Dunn Gives Statement Of His Stand On Loading Rack Rules

In a letter to **National Petroleum News**, Col. B. W. Dunn, chief inspector of the Bureau of Explosives, sets forth clearly the position he occupies both on B. C. L. 180, regarding the location of loading racks and storage tanks at specified distances from the railroad tracks, and on M. C. L. 273, relating to tank car defects. The letter follows:

"On page 22 of your issue of October 1, 1919, appears an article from your special correspondent at Kansas City under the heading 'Blames Railroad Administration for Tank Loading Rack Order.'

"My remarks at Kansas City in this connection were intended to explain the difference in the status of our B. C. L. No. 180, which gives rules for the location of loading and unloading points and storage points with respect to railroad property, and our M. C. L. 273, which relates to defects in tank cars and the transportation losses due to gasoline. The latter circular contains only facts and recommendations, the former contains rules that were issued by direction of the U. S. Railroad Administration.

The railroad administration did not originate these rules. In 1910 a committee of the National Fire Protection Association prepared and recommended rules for the construction and location of storage tanks for inflammable liquids, and in 1912 the bureau of explosives issued instructions to guide its inspectors when they were called on to submit recommendations relating to new installations on or near the railroad right-of-way. These instructions were revised in 1915 and submitted to the oil industry for comment. The comments received did not show a willingness of the industry to cooperate in the correction of the practices that we considered unsafe.

"During the period 1912 to 1919 several attempts were made by individual railroads to secure the adoption by the railroads of a set of rules to cover the substance of the recommendations of the bureau of explosives, as given in circular issued to its inspectors. In the spring of 1919 a request of this kind from a prominent railroad was submitted to the U. S. Railroad Administration and the director of operation called for a recommendation from the American Railway Association.

"A special committee of the association was appointed and, after consideration of our circulars and our records of accidents, it drafted a set of proposed rules which received the approval of the bureau of explosives. The U. S. Railroad Administration authorized the promulgation of these rules in our B. C. L. 180. When the oil industry claimed that it had not had an opportunity to discuss the necessity for this action, the chief inspector of the bureau of explosives was authorized to issue our B. C. L. 184, which suspended the rules for a period of 45 days from October 1, 1919, to November 15, 1919.

"For any defects that can be shown to exist in the rules, the bureau of explosives is primarily responsible, and the approaching conferences between it and the American Petroleum Institute will furnish an opportunity to demonstrate the defects. A responsibility for the present situation rests also on the oil industry. Until quite recently it has not evinced any great interest in our recommendations to improve its practices in locating its activities on or near the railroad right-of-way.

"Its interest has been aroused by the translation of these recommendations into authoritative rules. It will be unfortunate if this interest is not accompanied by an appreciation of the fact that gasoline, which causes more transportation losses than any other dangerous article, is too hazardous to be handled and stored in large quantities any nearer to our railroads than is absolutely necessary."

Fire Devastates Eighty Acres Of Oil Lands

Staff Special

FORT WORTH, Nov. 10.—Eighty acres in Blocks 83, 84, 73, 74 and 75 of the northwestern extension territory of the Burkburnett field were swept clear of derricks in a fire that followed a stroke of lightning the morning of November 9. Half of the oil field town known as Waggoner City, subject to court litigation and which officially has been declared not to exist, almost ceased to exist literally as well. Burning oil from wooden storage tanks that were ignited coursed thru the streets of Ragtown, which housed roughly 12,000 souls living in frame structures and tents.

There were roughly 200 derricks and rotary rigs burned in the conflagration, besides half of the frame buildings in the town, together with 38 wooden tanks having a capacity of 1,600 barrels of oil each. Early estimates placed the monetary loss at more than a million dollars, but later estimates placed the loss as high as a million and a half to two million dollars.

CHICAGO, Nov. 9.—Due to action by the city councils of St. Louis and Springfield, Mo., the Standard Oil Company of Indiana has advanced the filling station price of gasoline in these cities one-half cent and one cent a gallon, respectively. In St. Louis, the council levied a half cent a gallon tax on motor fuel and in Springfield a tax of one cent a gallon was placed.

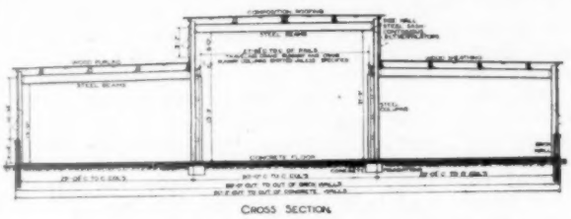
ELECTRICITY SURPASSES STEAM

(Continued from Page 29)

to the top. With the motor, as the line increases the size of the coil on the shaft, the tools come out faster and faster and generally make it to the top quicker than steam.

"It was my pleasure to land the 10-inch casing at 1,740 feet, 447 feet of which was extra heavy pipe. The string weighed approximately thirty-four tons. We had occasion to raise and lower casing in mudding off gas and it was remarkable to note with what ease the motor handled the pipe. It was necessary to advance the control lever to only the fourth point, pulling casing, I could part any string in pulling casing, I coud part any string in the hole in one minute, but it is so easy to control that it is not necessary to run up against it on a loose line as with a steam engine. With a little judgment it is excellent for pulling casing."

Crane equipped machine shop with outside crane-way, designed and furnished by The Austin Co. and erected by the owner, The Lone Star Company, at Wichita Falls, Texas



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Fuel Oil Storage Rules Adopted For New York City

By Special Correspondent
NEW YORK, Nov. 10

THE final hearing on rules governing the storage and use of fuel oil and installation of oil-burning equipment was held last Thursday, November 6, before the New York Board of Standards and Appeals, and the rules, with various revisions from the proposed draft of October 29, have been formally adopted to become effective in the greater city on December 1.

The most notable concession to the oil interests at the closing session was in the reduction in the closed cup flash point from 155 to 150 degrees. The accepted test accords with that recognized by the National Fire Protection Association and while some of the more aggressive oil men regard 150 degrees as too high and calculated to affect the general production of fuel oil, others are satisfied that it will prove a practical basis upon which the new system can be inaugurated. The open cup tests have also been modified from 80 to 75 degrees.

Other material changes in the final draft of the New York Board of Standards and Appeals rules are the omission, under the heading "Tanks Placed Above Ground (Vertical)," of the provision permitting the use of other than cylindrical shaped tanks in exceptional cases and the addition of the requirements that all tanks shall be tested and withstand a pressure of not less than 25 pounds per square inch, shop test, and that a separate hand pump shall be provided for starting purposes and the exclusion of the rule allowing the installation of auxiliary supply tanks.

The New York City rules, as finally revised, will probably raise during the early stage of operation various questions and complications, but the board, under the direction of Captain John P. Leo, chairman, has given many evidences of its purpose to encourage the widest adoption of fuel oil installation, and on issues submitted for construction or determination it is believed that as liberal a policy as can be reasonably justified will be followed. Fire Chief Kenlon has also been a zealous advocate of the adoption of the fuel oil rules and has rendered notable support to the cause. He welcomed the consummation of the work as an example for other municipalities.

Now that the way has been cleared, preparations for the installation of fuel oil apparatus in a number of the larger office buildings, hotels and industrial plants are expected to be pushed with all possible speed. There may be some question as to whether the rules can be applied practically to owners or managers of the average sized apartment house. Some of the late publications have indulged in rather fantastic ideas on the adoption of fuel oil for general requirements. One statement pictured the plan of having the oil piped over the city somewhat after the scheme of water and gas distribution, while another credited a leading company with the perfection of a special grade of fuel oil and apparatus for its use that would make it as practicable as a kerosene burner. The local companies are not yet disposed to announce so far any special arrangements for covering what promise to be unusually heavy requirements of fuel oil. Tank wagon deliveries are likely to take care of the average consumer, with the oil run thru pipes from the street level to the storage tanks under ground.

The embargo on coal bunkering by steamships of foreign registry is expected to prove a big factor in the use of fuel oil by the mercantile marine. The United Fruit and International Mercantile Marine fleets will be converted into oil burners and the shipping board has awarded a contract for changing six former German vessels.

The rules adopted follow:

Rule 1. Definition. Flash Point and Specific Gravity

"All oil used for fuel purposes under these rules shall show a minimum flash point of not less than 175 degrees F. in an open cup tester, or if closed cup tester be used a minimum of not less than 150 degrees F., and its specific gravity shall be not less than .933 (20 degrees Be.) at a temperature of 60 degrees F. and must not be fed from the tank to the suction pump at a preheat temperature higher than its flash point.

Rule 2. Manner of Storage.

"Oil to be used as fuel for commercial, heating and power purposes on the premises where stored shall be at all times contained in metal tanks with all openings or connections thru the tops of the tanks, except a clean-out plug in the bottom; and, when located inside of a building, must at all times be placed in the cellar or lowest story of such building, and at least two feet in a horizontal direction from any supporting portion of the structure, and if practicable shall be buried underneath the lowest floor or ground.

Rule 3. Location of Tanks. Existing Buildings

"No storage of fuel shall be permitted in a building of frame construction within the fire limits, or in buildings of hazardous occupancy as to defined by the fire commissioner.

"If placed in buildings already erected, if not buried beneath the lowest floor or ground, such tanks shall be placed in an enclosure the floor of which shall be at least three feet below the surface of the cellar or lower story; or if by reason of water or foundation conditions, or if on rock bottom, the tank may be placed above the surface of the ground, but in any case subject to the conditions as hereinafter described under Rule 5.

Rule 4. Location of Tanks—New Buildings.

"In buildings hereafter erected the bottom of the fuel oil service tanks shall be located in or below the floor level of the cellar or lower story as shall be determined by the Superintendent of Buildings under the provisions of Rule 2.

Rule 5. Enclosure of Tanks

"In either existing or new buildings such fuel oil service tanks shall be enclosed in an unpierced wall and floor of approved masonry or reinforced concrete, made oilproof and waterproof, and not less than 12 inches in thickness; and also of sufficient thickness to properly support any lateral pressure, and to be of lateral dimensions at least one foot greater on all sides than the outside dimensions of the tank. These walls are to be carried up to a height of at least one foot above the tank, or the supply and feed connections thereto, and roofed over with reinforced concrete or its equivalent at least 12 inches thick and capable of sustaining a live load of at least 300 pounds per square foot; and if not buried below the ground, placed so as to leave a clear and open space (except for pipe connection) of at least two feet between such roof over the enclosure and the under side of the ceiling above. The roof of every enclosure shall contain a manhole with fireproof cover properly weighted, but not fastened, placed immediately above the supply and feed connections and the manhole in top of the tank.

"Where found impractical to set the bottom of the tank three feet below the floor of the cellar or lower story, the tank shall rest on steel or masonry supports, and the bottom of the tank shall be at least one foot above the floor of the enclosure, and the enclosure wall and floor as above specified shall be unpierced and the space below the horizontal center line of the tank and within the enclosure formed by the surrounding unpierced walls shall have a capacity of at least 60 per cent of the capacity of the tank.

"The space within the enclosure surrounding the tank shall be at all times vented to the air outside of the building by iron or other fireproofed conduit at least two and one-half inches diameter, connecting the enclosure at a point just above the floor level, and which shall finish above the street surface with proper connection at that point to permit the fire department to flood the enclosure.

"A separate similar vent without fire department conection shall enter the enclosure just below its ceiling.

Rule 6. Capacity of Tanks

"In existing or new buildings of non-fireproof construction no fuel oil service tank containing over 10,200 gallons, and in buildings of fireproof consturction no tank containing over 20,000 gallons, shall be placed in any single portion of the cellar or lower story unless such portion be separated from the rest of the cellar by walls of masonry or reinforced concrete with openings protected by automatic fireproof doors, with sills placed high enough above the cellar floor to con-

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tain capacity of tank located therein, in addition to the enclosure as already specified for the tank, and such portion be ventilated to the outer air. More than one such single tank may be installed if enclosed and separated as above.

"When tanks are buried so that the top of the roof over the enclosure wall is level with the cellar floor, the capacity of any such tank may be increased by 100 per cent.

Rule 7. Service Tanks Located Outside of Buildings Within Fire Limits

"Within the fire limits, tanks to contain fuel oil for use on the premises, and of a capacity and at distance specified below, may be placed above ground outside of the building if such tank does not exceed 15 feet in height above the surface of the ground and if completely enclosed in the same manner as provided for in Rule 5.

Distance to Nearest Building in Feet Not Exceeding	Capacity in Gallons
40	71,400
30	40,800
20	30,600
10	20,400
5	10,200

"If such service tanks are entirely buried and roofed below the surface of the ground, the capacity in gallons may be increased by 200 per cent .

Rule 8. Outside General Storage Fuel Oil Tanks Located Above Ground Within the Fire Limits

"Such general storage tanks located within the fire limits shall not exceed 25 feet in height, shall be built of metal, and shall be surrounded with a dike of unpierced masonry or reinforced concrete not less than four feet in height, with a capacity of at least that of the tank to be protected. The walls and floor of such dikes must be continuous, and oilproof and waterproof, and must not be builit within ten feet of the walls of the tank. If tanks are placed in battery the dikes shall be rectangular in shape, and the dike wall separating them as well as the dike wall within 100 feet of any structure, shall be carried up as a fire stop to a height of four feet above the head of the tank and coped with stone or concrete, and any openings in walls above the dike shall have automatic fireproof doors.

"The capacity of any such single general storage tank within the fire limits shall not exceed 100,000 gallons, and the gross capacity of storage shall not exceed the following tables:

To line of adjoining property or nearest building (feet).	Gallons
75	100,000
100	150,000
150	250,000
200	500,000

"Such general storage tanks may have extra fill and emptying connections as the fire commissioner may determine.

Rule 9. Outside General Storage Fuel Oil Tanks Located Outside the Fire Limits

"Such general storage tanks shall be protected by dikes and fire stops as provided under Rule 8, shall not exceed 35 feet in height above the ground, and may be constructed either of metal or of concrete reinforced with steel in order to resist the oil pressure.

"If built of concrete, the walls and floor of such tanks shall be continuous and shall be not less than eight inches thick, mixed in the proportion of 1:1½:3 graded and mixed in accordance with the requirements of Chapter 5, Code of Ordinances. The walls shall be of sufficient thickness so that the tensile stress, disregarding the steel reinforcement, shall not exceed 150 pounds per square inch. The horizontal and vertical reinforcements shall be properly proportioned and placed to provide for expansion and shrinkage without leakage, and the stress in the steel shall not exceed 10,000 pounds per square inch.

"The concrete shall harden at least 28 days before use, and the surface of the floor and the interior surface of the walls shall be protected by coating with a sodium silicate solution or other equally good protection to prevent oil coming in contact with the concrete.

"The maximum gross capacity of any such single tank when situated outside the fire limits shall not exceed 250,000 gallons, but the gross storage capacity may be double that specified in the tables under Rule 8; and when such tanks are placed at least 250 feet from the line of adjoining property or the nearest building, the gross capacity may be unlimited.

Rule 10. Material and Construction of Tanks

"All fuel oil storage tanks within the fire limits shall be constructed of wrought iron, galvanized steel, basic open hearth or electric steel plates of gauge corresponding to the capacity as specified in the following tables:

Tanks Underground

Capacity in Gallons	Thickness of material U. S. gauge Inches
500	14
1,000	12
5,000	7
10,000	¼
20,000	5/16
30,000	⅜

Tanks Above Ground. (Horizontal)

Maximum Diameter in feet	Thickness of Material U. S. Gauge Heads inches	Shell inches
5	7	10
8	¼	7
11	⅜	¼

Tanks Above Ground (Vertical)

Thickness of Material, U. S. Gauge

Diameter Feet	Top	Top Ring	2d ring from top	3d ring from top	4th ring from top	5th ring from top	6th ring from top	Bottom
40 & less	10	7	7	7	5	3	2	10
45	10	7	7	7	5	3	1	10
50	10	7	7	7	4	1	0	10
55	10	7	7	6	3	1	2–0	10
60	10	7	7	5	2	0	2–0	10
65	10	7	7	5	1	0	3–0	10
70	10	7	7	4	1	2–0	4–0	10
75	10	7	7	4	1	2–0	4–0	10
80	10	7	7	3	0	3–0	5–0	10

"2. Tanks of greater capacity than above shall be proportionately heavier and of sufficient thickness to safely hold the contents.

"3. All joints shall be riveted and caulked, brazed, welded, or made by some equally satisfactory process, and the tanks braced sufficiently to withstand all stresses due to transportation or use. All riveted joints shall have an efficiency of not less than 60 per cent.

"4. The top cover shall be of the same material as used in the construction of the tank, permanently secured to the tanks without other openings than provided for in these rules. A safety valve shall be installed on all tanks placed outside of buildings.

"5. All outlets and inlets shall be through the top or cover of the tank, except for the clean-out plug as provided for under Rule 2, and in general storage tanks a water drain not exceeding one inch diameter may be permitted.

"6. All metal tanks shall be thoroly coated on the outside with tar, asphaltum, or other suitable rust-resisting protection. When buried in soil impregnated with corrosive materials, steel tanks shall be entirely covered with a two-inch thickness of cement mortar or shall be of heavier metal in addition to being protected as specified.

"7. All above ground storage tanks exceeding 200,000 gallons capacity shall be provided with approved explosion hatches having a combined area of not less than 1½ per cent of the roof area of the tank.

"8. All tanks shall be tested and must withstand a pressure of not less than 25 pounds per square inch shop test.

Rule 11. Vent and Fill Pipes

"1. Each fuel oil tank shall be provided with a separate steel vent pipe and a separate steel fill pipe of at least two inches diameter placed in the top of the tank. The vents for enclosure around tank shall be as specified under Rule 5.

"2. Vent pipes for fuel oil tanks located in the lower story or buried under buildings shall be run to a point outside the building, above the street surface and at least 12 feet above the fill pipe and shall terminate in a weatherproof hood or a gooseneck, protected with non-corrodable screens of not less than 30x30 nickel mesh or equivalent. Such vent shall not be located within five feet either vertically or horizontally of a window or other opening or an exterior stairway or fire escape.

"3. The receiver terminal or fill pipes shall be located in a metal box or casting provided with means for locking and the delivery terminal shall be connected thru the top of the tank at a point furthest remote from the vent.

Rule 12. Fuel Oil Feed System

"1. Systems fed by gravity or force systems between tank and pump shall not be permitted.

"2. Pump suction feed systems only will be approved and anti-ciphon system must be provided.

Rule 13. Pumps and Piping

"1. Feed pumps for fuel oils shall be of approved design, so arranged that dangerous pressures will not obtain in any part of the system and shall be located outside of enclosure walls around storage tanks, but so placed as to be accessible at all times, and provision shall also be made for remote control. They shall be installed in duplicate when directed by the fire commissioner and shall be provided

"Western Petroleum" Trade Bulletin

Form 1201

CLASS OF SERVICE	SYMBOL
Day Message	
Day Letter	Blue
Night Message	Nite
Night Letter	N L

If none of these three symbols appears after the check (number of words) this is a day message. Otherwise its character is indicated by the symbol appearing after the check.

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NEWCOMB CARLTON, PRESIDENT GEORGE W. E. ATKINS, FIRST VICE-PRESIDENT

CLASS OF SERVICE	SYMBOL
Day Message	
Day Letter	Blue
Night Message	Nite
Night Letter	N L

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CHICAGO, ILL., NOVEMBER 11, 1919

NATIONAL PETROLEUM NEWS

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with a by-pass to permit the draining of the oil for repairs. A separate hand-pump shall be provided for starting purposes.

"2. Oil conveying pipes shall be carried above the tank outlet; if laid underground separate trench enclosed in fireproof or non-conducting material. They shall be of extra heavy standard wrought iron, steel or brass pipe with substantial fittings and not less than one-half inch in size, and if covered it shall be with asbestos or other approved fireproof material. Overflow pipes shall be at least one size larger than supply pipes and shall be carried back to the receiver terminal.

"3. All connections shall be tight, with well-fitted joints. Unions shall have at least one face made of brass with conically faced seats.

"4. Connections leading to outside tanks shall be laid below the frost line and shall not be located near or placed in same trench with piping other than steam lines for heating. All pipes leading to the surface of the ground shall be cased or jacketed to prevent loosening or breakage. Openings for pipes thru outside walls below the ground level shall be securely cemented and made oil-tight.

"5. Piping shall be run as directly as possible, without sags, and be properly supported to allow for expansion, contraction, jarring and vibration and draining.

"6. Piping between any separated oil container or using parts of the equipment should be laid as far as practicable outside of the building, underground, and inside piping in a trench with metal cover or protected by not less than three inches of concrete.

"7. Piping under pressure must be designed with a factor of safety of not less than six, and shall in every case be tested to a pressure of not less than 150 pounds after installation.

Rule 14. Controlling Values

"1. In fuel oil piping systems, readily accessible shut-off valves shall be provided in the supply line of fuel oils as near to tank as practicable, on both sides of any strainer which may be installed in pipe lines, in the main line inside the building, at each oil consuming device, and a gate valve in the discharge and suction pipes near the pump. Provision shall be made to insure the cessation of oil supply from tank to the burner when the pump is not in work.

Rule 15. Heating

"1. All heating to reduce viscosity of fuel oils in storage tanks in any building shall be only by means of hot water coils and the oil shall not be heated above 140 degrees F.

"2. All outside pipes subject to freezing shall be protected with a heating line of steam or hot water.

Rule 16. Fuel Oil Burners

"1. Burners containing chambers which allow dangerous accumulation of gases or containing oil-conveying pipe or parts subject to intense heat or stoppage from carbonization are prohibited.

"2. Oil shall be supplied thru orifices not larger than necessary to supply sufficient oil for maximum burning conditions when the controlling valves are wide open.

"3. The mechanism shall be so designed that, where manual or automatic control is provided, operated at some distance from the burner, the flame cannot be extinguished except by closing the main shut-off valve in line to burner. Approved gas-pilot lights or equivalent will be acceptable.

"4. A check valve of approved type shall be installed in each oil, steam and air line near the burner.

"5. Smoke pipes shall be installed between the burners and chimney, and any dampers in smoke pipes shall not exceed 80 per cent of the area of the pipe. Necessary regulation of draft shall be accomplished by dampers in the fire or ash pit doors.

"6. Burners shall be installed with overflow attachment so arranged that surplus oil will drain by gravity from the burner into a substantially constructed reservoir. Such reservoir shall be constructed of brass, copper or galvanized iron plate not less than No. 18 U. S. gauge in thickness and shall be provided with a vent pipe with weatherproof hood leading outside the building.

"7. The supply of oil and air or steam for atomizing shall be interlocked, so that if the steam or air should fail the oil will be automatically shut off.

Rule 17. Fuel Oil Fire Extinguishing Equipment

"1. Every tank with a capacity of over 10,000 gallons shall be equipped with a system of steam pipes, blanketing gas or other approved system for use in case of fire, so arranged and installed as to adequately protect surrounding property.

"2. When steam is used, the steam supply pipe shall not be less than one-half inch in size, the boilers shall be conveniently located, and shall be controlled by valves outside the tank enclosure.

Rule 18. General Devices

"All devices used in connection with oil-burning apparatus, such as indicators, gauges and burners, shall be of such character as to minimize leakage and exposure of oil, and shall be connected thru substantial fittings. Devices which are subject to breakage and escape of oil shall be prohibited.

"Thermometers with large, clear-reading scales, placed in approved thermometer wells with screwed top connections, shall be installed at convenient and prominent positions in the oil supply pipe lines between the service tank and the pumps, and also between the pumps and burners, to indicate the temperature of the oil.

Rule 19. Instruction Cards

"Cards giving complete instructions for the care and operation of the fuel oil system shall be permanently fixed near the apparatus.

Rule 20. Operation of Plant

"Such fuel oil-burning plants may be operated only by a licensed engineer or by a licensed operator who shall be a citizen of the United States, who can read and write the English language, and who is familiar with the practical working of such plant, as evidenced by the certificate of the fire commissioner.

Rule 21. Installation

"No installation of fuel oil plants shall be commenced until after the approval of plans by the fire commissioner, which plans shall be submitted to him for examination, together with the certificate of the superintendent of buildings, that the proposed construction of the enclosure and the location of tanks is in accordance with the requirements of the building code and of these rules."

Will Fight Order

(Continued from Page 27)

munication leading from the storage tank to a valve attached to the safety valve on the tank car. The valve shall be equipped with a gauge constructed so as to indicate pounds' pressure on the tank car dome.

Answer 2. LOADING of all other gasolines:

In new locations loading racks for all other gasolines shall be placed not less than twenty-five feet from the main line track, with a maximum requirement of fifty feet where physical conditions will permit.

UNLOADING all other gasolines:

Ordinary clearance from main line track shall be the requirement for unloading points.

(c) What should be the minimum distance for new above-ground storage tanks?

Answer 3. The following distances from main line tracks are recommended for new installation of storage tanks:

Capacity of Tanks

(Here there follows distances in feet for tanks ranging from 500 to 1,000,000 gallons capacity, the distance ranging from 10 to 100 feet.)

The legal right of the Bureau of Explosives to make any requirement as to distances of storage tanks was especially questioned.

Answer 4. The requirements of paragraph "H" to the effect that "The above distances should be doubled for tanks containing casinghead gasoline or casinghead blends," should be eliminated.

Answer 5. The requirement for the erection of dikes surrounding storage tanks should be eliminated from paragraph "I" except as to new storage tanks of 150,000 gallons capacity or over, where the ground does not slope away from the railroad.

Answer 6. The requirement of paragraph "D" that "rubber, leather or fabric hose must not be used" should be eliminated.

Answer 7. The requirement in paragraph "E" that the gooseneck used should be automatic should be eliminated.

Answer 8. The requirement in paragraph "F" that pits be constructed should be eliminated.

Answer 9. Paragraph "G" requiring the loading and unloading of gasoline to be done only during daylight hours should be eliminated.

The use of safety devices by the railroads and railroad employes is strongly recommended and urged, especially the avoidance of open flame lights, lanterns, etc., in and around loading and unloading racks.

(d) Considering old installations, what minimum distances should be specified to indicate the necessity for immediate correction of inadmissible hazards? (Not answered except as above.)

It was recommended that a committee of experts from the industry should be appointed at the conference in Chicago to recommend a proper venting device and to submit constructive suggestions.

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Altitude Is Factor In Horsepower Of Oil Burning Boilers

By John Rome Battle, Bsc. In M.E., M.E.

Associate Member American Society Mechanical Engineers
(J. R. Battle Company, Engineers, Philadelphia)

BEFORE entering into a general discussion of chimneys and dratt for oil burning plants, the terms and principles used will be explained for the reader not versed in this subject.

Draft is the difference in pressure which is available to cause a flow of gases thru the boiler and up the stack. When the gases are heated each unit volume of gas expands and thus weighs less per cubic foot. The column of these heated gases which are contained in a chimney, therefore, weighs less when considered as resting on the bottom of the stack, than will a similar column of cold air of the same height, outside of the stack.

Stating this differently, we can say that the weight per unit area at the base of the stack containing the hot gases is less than the weight per unit area of a similar column of cold air. This gives a difference of pressure, and just as would be the case if we had water instead of gases to deal with, a flow of gases is caused into the base of the stack.

The difference of pressure or draft is measured usually in inches of water. As an illustration of the principle of chimney draft, assume that the temperature outside is 60 deg. F., and that the temperature of the waste gases at the chimney entrance is 500 deg. F. If we neglect the difference in density between the chimney gases and the air, then:

The weight of a cu. ft. of air at 60° F..... = .07636 lbs.
The weight of a cu. ft. of air at 500° F..... = .04135 lbs.

.03501 lbs.

Therefore, .03501 pounds is the difference between the weight of the external air, and the internal flue gas per cubic foot.

If a chimney is assumed to be 90 feet high, there would be a pressure on each square foot of the cross-sectional area at the base, of: $90 \times .03501 = 3.1509$ pounds.

Since a cubic foot of water weighs, at 60 deg. F., 62.37 pounds, then: An inch depth of water exerts a pressure of

$$\frac{62.37}{12} = 5.197 \text{ pounds per square foot.}$$

Therefore, the 90-foot stack, as above, would show a draft, or difference of pressure of:

$$\frac{.03501 \times 90}{5.197} = \frac{3.1509}{5.197} = 0.606 \text{ inches of water.}$$

Correct Height For Chimneys

The correct height of chimneys for fuel oil plants is less than ordinarily believed when the boilers are operated at rating. On the other hand, the necessary heights for chimneys for oil are usually greater for boilers operating on heavy overloads than is usually believed.

John Rome Battle

When the chimney height is limited to the height necessary for economical air supply for the desired load, it will then be practically impossible for a careless fireman to cause serious abuse to the boilers due to overload or to impair economy by excess air supply.

A chimney height should be decided upon according to the maximum boiler overload and draft resistance at overload rather than basing the selection upon the rated horsepower of the connected boilers.

Altitude is an important factor affecting the capacity of boiler chimneys. In general, it has been assumed that as the barometric pressure decreases, the stack height increases, and that the stack diameter should increase inversely as the two-fifths power of the barometric pressure; all other boiler and chimney figures remaining constant.

This rule was upon the basis of constant draft, measured in inches of water at the chimney base, for a certain firing rate of the boilers, either expressed in pounds of coal per square foot of grate surface for coal, or as a ratio of the rated capacity when burning oil. This assumption was made regardless of altitude, and is not correct.

Velocity Of Gases the Same

The velocity of the chimney gases will remain the same at altitude as at sea level, and the weight of gases per second with a fixed velocity is proportional to the atmospheric density or inversely proportional to the normal barometric pressure. Thus, it may be generally stated that the maximum capacity of a given boiler plant, considered as having a fixed size of chimney and a fixed fuel, will decrease at altitudes higher than sea level at a rate which is proportional directly to barometric height.

To develop a given boiler horsepower requires a constant weight of chimney gases and combustion air, therefore, for higher altitudes. Since the density is decreased, the velocity thru the furnace, checker-work and boiler passes must be greater than at sea level. For chimneys at altitudes, both the height and diameter should be increased as compared to sea level plants of the same type.

The rated capacity of the boilers is a main factor in determining the total weight of gases per hour to be handled by the chimney in a given plant, but the maximum momentary overload capacity, the percentage of excess air necessary for the boilers and furnaces of the type used in the plant and the boiler efficiency for the assumed conditions, are also governing factors.

While tests have demonstrated boiler efficiencies, minimum air for combustion, temperatures of waste gases, etc., it is found that, due to the negligence and lack

In the accompanying article, John Rome Battle, editor of the lubrication and industrial oil engineering department of *National Petroleum News* and a practical engineer, discusses the relation of altitude above sea level to horsepower of oil burning plants, the relation of the height of stacks to operation of plants either at rated horsepower or under overload and the amount of excess air needed in practical operation above that shown necessary by chemical tests. The latter phase of oil burning, Mr. Battle points out, is affected by skill of the fireman, perfect or imperfect construction work in the furnace and other factors.

For the benefit of readers not familiar with the principles of combustion as applied to fuel oil, Mr. Battle defines draft and describes the operation of an oil furnace with regard to the temperatures and movement of the flue gases.—Editor.

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of skill of the average fireman met with in daily practice, combined with burner carbonization, poor damper adjustment, imperfect furnace brickwork, etc., provision for a supply of air in excess of the minimum air supply demonstrated in the tests referred to, must be made. This allowance of excess air depends upon the type of boiler, skill of firemen and type of service.

New Plant Needs Less Air

When a boiler plant is new, the combustion air required is a minimum and generally the weight of gases handled by the chimney is only a little greater, than the supply entering the furnace. Leaky boiler settings, long masonry flues, etc., require that an allowance be made. There is practically no air leakage with steel flues.

A good assumed margin for excess air over the chemically required air supply, for a good type of water tube boiler running at rating or overloaded, is about 50 per cent, measured at the chimney inlet. Of course, for badly designed furnaces or poor operation, a greater amount of excess air must be assumed.

The belief seems to be wide that the excess air supply can be reduced to practically the theoretical limit in oil burning, by simply closing the damper. However, smoke may be formed even with 50 per cent excess air if the furnace is poorly designed and does not have correct shape, volume and location of the checker board with reference to the burner so as to insure a complete mixture of combustion air and oil. The furnace efficiency, in connection with this mixture and depending on the surrounding hot brickwork, is the factor determining the minimum excess air, which can be supplied without causing smoking.

The temperature of the chimney gases depends largely upon the type of boiler, the rate of firing, the rate of excess air supply and the general circulation of the hot gases as affected by the condition of the boilers and their heat absorption.

In a good economical type of boiler, with test conditions, the temperature of the waste gases will be about 425 deg. F., when running at rating. When running at about 50 per cent overload, the escaping gas temperatures should average about 500 deg. F.

Under good ordinary firing, an economical boiler, having its tubes in good condition, will show about 450 deg. F., at rating, and about 525 deg. F. at 50 per cent overload.

One point, which should be considered in connection with the chimney, is that an allowance should be made for a temperature drop between the boiler outlet and the chimney inlet. The amount of this allowance will depend upon the length and kind of breeching, the probability of an infiltration and the number of boilers which may be idle and connected to the same breeching and thru which cold air may enter by way of their dampers.

Large plants that are subject to swinging loads may, when a sudden heavy load comes on, indicate that the chimney is sluggish, due to the inertia of the gases and the time required for heating the chimney, and there will probably be some smoke formed. In plants which are subject to a uniform load, such as pumping, the height of the chimney should be reduced, so that when the boilers are operated with dampers nearly wide open, the excess air supply will not exceed economical firing requirements.

Leasing Bill With Conference Committee

By Special Correspondent

WASHINGTON, Nov. 9.—A mineral land leasing bill is again in the hands of a committee appointed to compose the differences between the votes of the two houses of congress and furnish the basis for the distribution of the $20,000,000 tied up by reason of President Taft's withdrawal from patent under the mining laws of the country of oil lands in the public land states, and to establish a basis whereby the oil lands may be exploited. The house, October 30, passed its substitute for the Smoot leasing bill and immediately sent it to conference.

The vote was overwhelmingly in favor of the house substitute for the senate bill, being on the test 243 to 29. On final passage the vote was only 169 to 39, but that final passage vote was not the significant one. The vote that meant something was the one taken on a motion to send the bill back to the committee on public lands, made by Representative Griffin, of New York. On that the record was 243 to 29. On final passage ten were added to the opposition, while seventy odd of those who had voted against re-committing the bill either left the chamber or failed to record themselves.

In conference there will be two questions for solution by those who are vitally interested in the matter, especially those represented in Washington by former Governor Gillette, of California. The first is as to whether the competitive bidding section written by the house committee is good or bad. The other will be as to the meaning to be attached to the section declaring what the Secretary of the Interior shall write into the lease.

The second question was raised by an amendment of Representative Anderson, of Minnesota, and accepted by Chairman Sinnett of the public lands committee. The Anderson amendment says one of the conditions of the lease shall be an agreement by the lessee to sell the products to the people of the United States "at reasonable prices." The query is as to whether the amendment seeks to make the producer of the oil agree to see to it that oil in its various forms is sold to the people of this country at reasonable prices, or forfeit his lease.

As the men from the public land states see the whole subject, the administrative officers in charge of the public lands of the country, while pretending to give the finder of oil something valuable, as a matter of fact are trying to make him agree in advance to stipulations that would materially limit his operations.

In agreeing to the Smoot bill they surrendered their dearest conviction, which is that the public lands should be sold in fee to those who will agree to develop them. They gave up that idea and agreed to a leasing system so as to get something done with the millions of resources held in place by the conservationists who have forced their policy on the administration of the Interior Department. They naturally view with suspicion every limitation put on a lease and question the good faith of the departmental officials at

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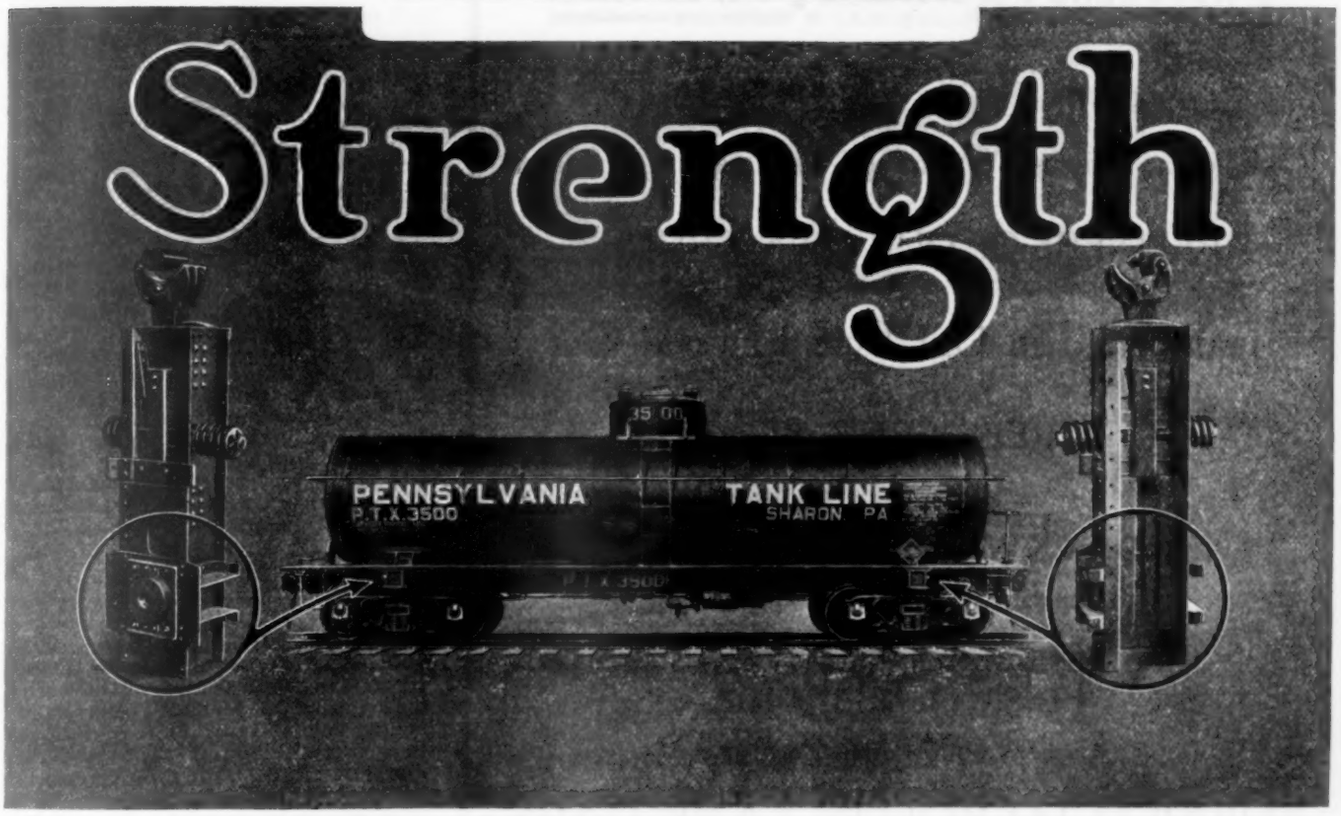

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every turn because the officials believe it to be their business to drive bargains with citizens seeking to develop the oil fields that would shame a Shylock.

Another big fight in the conference will be over the question of a maximum limit on the royalty the Secretary of the Interior may exact. The senate fixed that maximum at 25 per cent. The house struck it out so the secretary, if so minded, could demand 75 or even 99 per cent and thereby nullify the whole law. In the same way the competitive bidding provision could be used for hocus pocus business, if a rabid conservationist should be appointed secretary of the interior.

The house, on motion of Representative Snell, of New York, changed the proportions into which the funds derived from leases are to be divided. As reported by the committee the money was to be divided, 10 per cent for administrative purposes, 45 per cent for the reclamation service and the other 45 per cent to be given to the states. Under the Snell amendment the division will be 10 per cent for administrative purposes, 60 per cent for the reclamation service and the rest for the state.

Five days were spent in debating the bill, chiefly by Representative Raker, of California, who offered dozens of amendments, which were knocked down. He insisted upon having forty of the sixty minutes allowed for general debate and then used five minutes after time during the debate under the five-minute rule. Finally he tried to move to re-commit the bill. That is a motion that can be made only by a member who is opposed to a bill. The speaker asked Raker if he was opposed. He said he was not, wherefore the speaker refused to recognize him for that purpose. Griffin, of New York, made the motion, which was the test of strength. It was voted down, as before set forth, by a vote of 243 to 29.

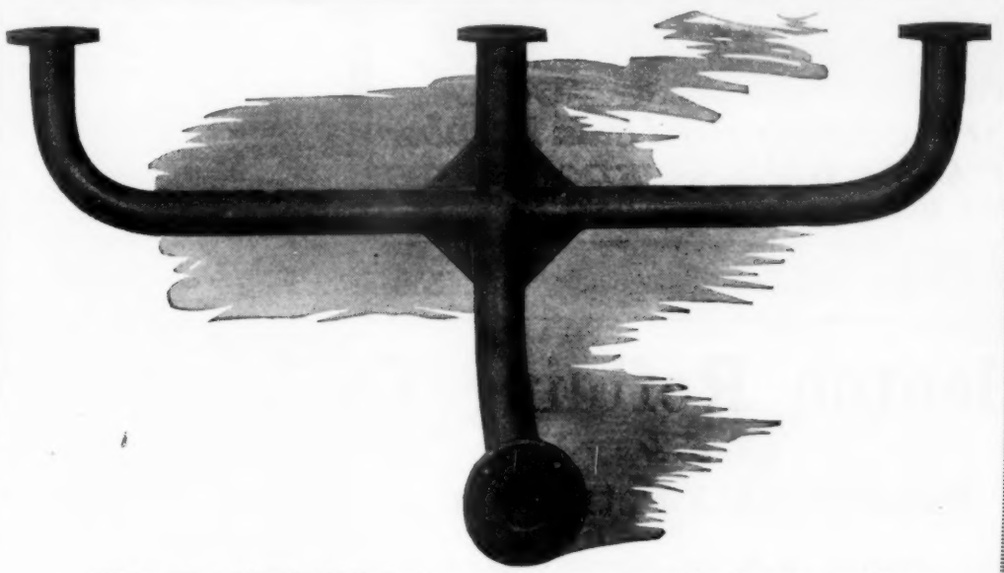
Producers Charge Profiteering In Pipe

Staff Special

TULSA, OKLA., Nov. 10.—The new executive committee of the Kansas-Oklahoma division of the Mid-Continent Oil & Gas Association, at a recent meeting, considered communications from producers complaining of the manner in which pipe is supplied to the industry. The charge was made that the mills are not supplying the producers with pipe thru the customary channels, but are permitting brokers to handle the available supply at increased prices and that there is profiteering going on.

The committee refrained from expressing any opinion on the matter at the present time, but appointed a committee to investigate the matter and gather evidence with a view to arriving at the facts and suggesting any possible remedy.

The committee appointed consists of R. A. Griffith, of the Sinclair Company; C. J. Wrightsman and L. E. Z. Aaronson. This committee will begin its investigation at once and will extend an invitation to all producers and parties interested in the matter to supply the committee with evidence and specific instances in their experience relating to this question.



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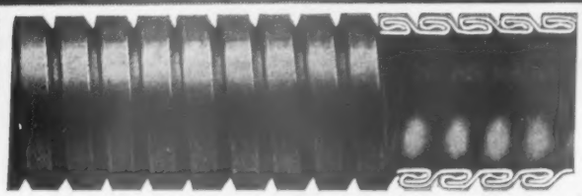

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Final Hearing Held On Storage Rules

By Special Correspondent

NEW YORK, Nov. 9.—Final hearing on the fuel oil storage rules under consideration by the New York Board of Standards and Appeals, which was scheduled for last Wednesday, was to be held Thursday, November 6.

The postponement was due to the delay in having the tentative form of the rules, as amended, printed in time for reasonable consideration by the concerned interests, owing to the printers' strike. The board hopes to have the revised draft thru at the coming session, altho there are still several provisions upon which the oil men are certain to object as detrimental to the industry and thereby calculated to impair the practical operation of the fuel oil movement in its relation to producing, marketing and consuming interests.

The specification of 155 degrees as the minimum flash point in an open cup tester is regarded as an unreasonable requirement, and some oil representatives are confident that as low as 135 degrees open cup test could be adopted with every regard for safety. The limitation of the capacity of the oil storage tanks to 20,000 gallons in fireproof buildings, it is urged, would prove a hardship to owners of the larger office buildings.

An instance is cited in the case of the Singer building, probably the first to burn oil under the New York rules, for which 20,000 gallons would represent only a four days' supply.

It is contended that buildings of this type should be permitted to carry at least a two weeks' stock of oil. The marketing advantages will undoubtedly be materially affected if the board does not recognize a more reasonable limitation on storage.

A comparison of the latest tentative draft of the Board of Standards and Appeals rules with that prepared at the earlier conferences shows a more studious attempt presumably to safeguard city and public interests, but there are occasional revisions which may be construed as more lenient to the oil interests.

Among the latter is the extension of the capacity of tanks outside of buildings, within fire limits, as follows.

Distance to nearest building in feet not exceeding	Capacity in gallons increased from	to
40	60,000	76,000
30	30,000	40,800
20	20,000	30,600
10	10,000	20,400
5	5,000	10,200

Another concession is found in the rule governing outside general storage tanks outside of fire limits, in which the maximum gross capacity of a single tank is increased from 200,000 to 250,000 gallons. The provisions relating to the thickness of material in underground and above ground horizontal tanks have been modified to a lessened degree in nearly all instances of capacity.

The rule requiring that fuel oil-burning plants shall be operated only by a licensed engineer, a citizen of the United States, able to read and write English, and who is familiar with the practical working of the plant, as evidenced by a certificate of the fire commissioner, is likely to work a restriction in the use of oil in a number of the smaller buildings in this cosmopoli-

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tan city, especially under the prevailing labor conditions.

There have been several other notable developments in the general fuel oil situation. The United States Shipping Board has announced its purpose to convert six of the larger freight vessels under its control, ranging from 7,000 to 11,000 tons, from coal to oil burners.

Under the most favorable conditions the conversion can be effected in less than a month. A representative of the board stated that difficulty was being experienced in loading fuel oil at various foreign points, especially in the Mediterranean, while at some South American ports sharp advances in prices were maintained, the most striking change being an increase from $3 to $4 a barrel. Formal transfer of the Leviathan has been made to the board for the installation of oil-burning equipment. Her coal capacity is said to be 18,000 tons, which will provide accommodation for nearly 75,000 barrels of oil. By this conversion it is estimated that her crew can be cut by 90 per cent. It is reported that a Pacific freighter has been able to lighten her crew to the extent of 67 men by making her an oil burner.

Theodore E. Ferris, naval architect and marine engineer, formerly associated with the shipping board, has announced plans for converting to oil burners six of the Eastern Steamship vessels, two single and four double bottom. In the former deep tanks will have to be built for the oil, while in the latter the oil will be carried in the double bottoms, with some reinforcing of the tanks.

Among the contracts lately closed for fuel oil is one by the Standard Oil Company of New York for the tugs operated by the Long Island railroad, comprising 300,000 gallons a month over a year. Some of the leading companies are inclined to be more reserved in booking sizable contracts over an extended period on the tightening tendency of tanker tonnage. This condition has been reflected in a strengthening of road oil by 1 cent to 5 to 6 cents per gallon.

Rules Adversely On Tax Question

Staff Special

TULSA, OKLA., Nov. 10.—The commissioner of internal revenue, Daniel C. Roper, in a ruling concerning the meaning of the new Article 1566, Regulation 45, dealing with exchange of property for stock, ruled in a way contrary to the view taken by the Mid-Continent Oil & Gas Association. The commissioner holds that "market value" is the equivalent of fair value and that if property is traded for stock of any kind, that is not absolutely worthless, it creates a closed transaction and the stock received will be considered the equivalent of cash to the extent of its value, altho there may be no market for it and the value has to be ascertained by the opinion of witnesses.

The association sent the following question to the commissioner:

"Article 1566, as amended, provides that where property is transferred to a corporation in exchange for its stock, the exchange constitutes a closed transaction and the former owner of the property realizes a gain or loss, if the stock has a market value, and such market value is greater or less than the cost or the 'fair market value' as of March 1, 1913 (if acquired prior thereto), of the property given in exchange. The question raised is whether the words 'market value, and such market value' permit a presumption that the decision contemplates an actual market before the case would be brought within the provisions as to profit or loss, or the words 'market value, and such market value' are intended by the treasury department to mean 'fair value.'

"The use of the words 'fair market value as of March 1, 1913,' immediately following that part of the decision under discussion, would indicate that the word 'fair' was deliberately omitted in the first instance and that the words 'market value' were intended to convey the thought that there must be an actual market. This interpretation is further borne out by the fact that if the word 'fair' be inserted before the word 'market' in the first instance, the sentence might properly have been concluded with the word 'loss.'

"We can conceive of no situation in which property could be transferred in exchange for corporate stock which, under the rulings of the bureau, would be considered to have no 'fair value.'"

Commissioner Roper has sent the following reply to the association:

"In reply I beg to say that the words 'market value' as used in that treasury decision are used as an equivalent of 'fair market value,' and that stock is to be regarded as ordinarily having a market value, even tho no actual market for it can be established. Market value in this sense may, therefore, be regarded as the price which might reasonably be presumed would be agreed upon between a willing buyer and a willing seller."

This ruling is based on Section 202 (b) of the present revenue act, and it is the opinion of oil men here that the commissioner again resolves the doubt in favor of the government and against the taxpayer. The construction of the abovementioned section of the law will leave every income taxpayer who has exchanged property for stock in doubt as to the correctness of his return until the final estimate of value is made at Washington. Where there is no market price established, the question of value is largely one of opinion. Witnesses will disagree.

The revenue acts of prior years did not attempt to define what is the equivalent of cash. The present act says that property received in exchange shall be considered the equivalent of cash to the extent of its "fair market value, if any." It is the opinion of Harry H. Smith, secretary of the Mid-Continent Oil & Gas Association, that by making this amendment, Congress meant to limit the scope of the provision to property which had an established market price since the latter is much nearer an equivalent of cash than property which has never been dealt in or passed current. Smith suggests to the association that a concerted effort should be made to have Section 202 (b) repealed or amended so its meaning will be clear.

TULSA, OKLA., Nov. 9.—The Invader Oil & Refining Company has announced the purchase of the 1,500-barrel refinery of the Security Refinery, Inc., of Burkburnett, together with the pipe line, tank cars and all other equipment of that concern. The Invader company owns production in the Waggoner extension at Burkburnett and is extending the line to its own property. The capacity of the refinery will be increased to 2,000 barrels, and additional crude oil storage will be constructed.

The Brick That Floats

Although the fact that Nonpareil Insulating Brick will float on water is of no practical significance, it does indicate in a striking manner how light and, therefore, what good heat savers they are. Light materials are almost always better nonconductors of heat than heavy dense substances, especially if they contain large quantities of "dead-air," the best heat insulator known (except a vacuum).

This ideal combination is precisely what you find in Nonpareil Insulating Brick. The number of "dead-air" spaces in their principal constituent, diatomaceous earth, is increased by the manufacturing process, and the finished product has a heat insulating value ten times greater than either fire brick or common brick. And although they weigh only 1.6 pounds each for the 9x4½x2½-inch size, they have an ultimate crushing strength of ten tons per square foot. Nonpareil Brick are not affected by temperatures up to 1650 degrees F., which is higher than they will encounter if protected with sufficient fire brick.

Do you want to save fuel without decreasing production, or increase the output of your stills using the same amount of fuel? If so, further information regarding the use of Nonpareil Insulating Brick in your refinery will be of interest. Just ask for it and a full-size sample.

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Lakeside Petroleum Has New York Office

J. E. Gerrodette

By Special Correspondent

NEW YORK, Nov. 9.—The Lakeside Petroleum Company, of Chicago, of which C. L. Maguire is president, has announced the opening in New York on November 1 of an eastern office at 17 Battery place. J. E. Gerrodette is in charge as eastern manager.

Mr. Gerrodette has been identified with various oil companies in New York since 1905, at which time he opened the New York office of the Pure Oil Company, of Philadelphia. During his connection with this company he built the large bulk distributing system which the company operates in the east. He was also in charge of the Pure Oil Company's export and domestic jobbing business.

In 1912 Mr. Gerrodette entered the brokerage business on his own account under the name of J. E. Gerrodette & Company, Inc. In 1916 he sold this business to the Western Petroleum Company, of New York. He has recently been operating again as the J. E. Gerrodette & Company, Inc. He was the organizer and first president of the Oil Trades Association of New York, holding the executive's position for two years.

TULSA, OKLA., Nov. 9.—The Indian Gasoline Company is putting the finishing touches to its new 6-unit compression casinghead gasoline plant on the Virgie Cable allotment, Sec. 36-14-11, in the Youngstown pool, Okmulgee county, Okla., and set Monday, November 3, as the day for starting the manufacture of its first gasoline. It will be the first plant to start operations in the Youngstown pool. Work just prior to starting operation Monday consisted of repairing leaks in the lines. When tested out the other day, eighteen leaks were discovered, but all of them were expected to be closed by Monday.

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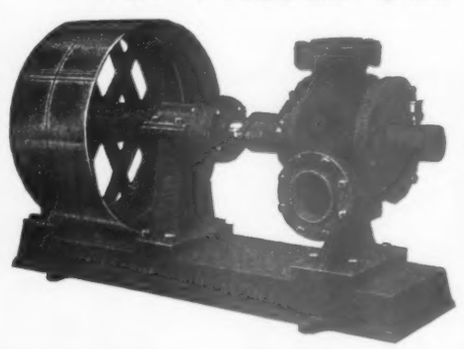

THIS Pump is of extraordinary heavy construction. The driving pulleys are swung between two substantial upright bearings so as to give rigidity. The pump proper is fitted with an extended shaft and coupling which engages that of the pulley-shaft, therefore a reserve pump body can be quickly put in place when necessary. This Pump is built for 3 in. and 4 in. connections and is suitable for handling heavy oils, tar, asphalt, soap stock and other fluids.

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U.S. Fuel Oil Stations To Girdle The Globe

WASHINGTON, Nov. 9.—American steamships can soon make a circuit of the world without the need of taking fuel at other than American-owned fuel stations. This applies to vessels steaming east from the Atlantic coast or west from the Pacific seaboard. This is according to a statement given out by the U. S. Shipping Board.

According to the statement, the shipping board realized that after war conditions might develop a situation with respect to coal supplies which would dictate the necessity of a modified application of bunker license at British stations. In that event, we would have been at a serious disadvantage unless immediate steps were taken to assure unrestricted operation of our ships in the world's trade.

The shipping board went to work to find suitable places for the establishment of American fuel stations along the trade lanes or adjacent to them. At the Panama Canal facilities already existed and only required to be amplified. To take care of the east coast trade of South America a station was erected at St. Thomas. This station, which had an initial capacity of 105,000 barrels of storage, was opened on October 2.

Arrangements have been made for establishing a station at the Azores and another at Bizerta, a small French island off Tunis and located on the ocean highway to the Indies. Material has been assembled at Manila, where another large storage tank is to be located.

"Despite what has been done," said J. H. Rosseter, director of the shipping board's division of operations, "we feel that we are still at the threshold of the major part of the question, this involving an increase in storage capacity of fuel stations and additional tank steamships for transporting oil to them. We must also take into account the fact that we must now carry oil to our Atlantic seaports, not only from Mexico but from the Texas and Louisiana fields as well."

Would Keep Oil Out Of N. Y. Harbor Water

By Special Correspondent

NEW YORK, Nov. 10.—Fire hazards in the practice of oil-burning vessels discharging waste oil into the tidal harbor waters are sought to be checked thru the adoption by the Board of Aldermen of an ordinance framed by the New York and New Jersey Dry Dock Association and awaiting introduction. This move has been instigated by several recent fires at Brooklyn repair yards, which have been attributed to this practice, and the danger, it is charged, will be magnified by the fast expansion of the adoption of oil for fuel by the merchant marine.

Federal and local laws bearing upon this subject are declared to be too loosely enforced to prove an adequate safeguard against the discharge of oil in the harbor. Among the provisions for remedying this practice, as covered by the proposed ordinance are the placing of receptacles at points convenient for disposing of the oil by vessels and the requirement of its removal for dumping in a proper place by the scows employed by the city or contractors for removing refuse matter.

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W. H. Rowe

Staff Special

SHREVEPORT, LA., Oct. 25.—"Bill" Rowe, one of the pioneers of the Homer development in Claiborne parish and who recently sold the holdings of himself and the Rowe Oil Corporation in that section of north Louisiana at a figure reported to be $7,000,000, is now going in for one of his hobbies—baseball. It was only recently that he purchased the Shreveport franchise in the Texas League, and he is now reported making overtures that next year will result in the Shreveport club playing in the Southern League thru the taking over of Mobile's place in the latter combination.

Already the owner of considerable production in the shallower stratum of Sec. 30, Rowe's completion early in September of a 20,000-barrel well in the 2,100 foot level on the Shaw tract again turned attention to his operations. These operations are carried on under the name of Rowe Oil Corporation, in which W. H. Malone and others of Denver are interested.

In the earlier Pine Island field, which is nearby the still older Caddo development, north of Shreveport, Rowe brought in 59 wells and three failures.

Joins Atlantic Gulf

FORT WORTH, Nov. 10.—E. R. Lederer, for several years connected with the Galena Signal Oil Company and later with the Home Oil Refining Company of Texas, on November 1, joined the forces of the Atlantic Gulf Oil Corporation, a subsidiary of the Agwi interest. Mr. Lederer will have charge of all the refining interests of the company and will make his headquarters at 11 Broadway, New York.

PRODUCTION SECTION

Tulsa Bureau
402 Cosden Building
H. L. Wood, Mgr.

Fort Worth Bureau
518 Texas State Bank Bldg.
Paul Wagner, Mgr.

Development Conditions At Ranger Studied To Avert Intensive Work

IN the absence of current operations of more than nominal interest in any of the producing fields of the country, and more particularly in the Texas districts, a condition that exists in the black lime development area of the latter state comes in for particular attention in a summary of the week's news. This is with regard to the action of the Texas division of the Mid-Continent Oil & Gas Association in going on record at its Fort Worth meeting against what is termed intensive operations in the general Ranger territory.

Against Initial Locations Forcing Neighboring Offsets

It was the sense of the meeting that the drilling of a test well on a large tract ordinarily could be preceded by its location 1,500 feet from a corner, thereby eliminating the necessity for as many as three neighboring lease-owners drilling protection offsets. The point was made by one of the Ranger territory operators, and concurred in by others, that the drilling up of the black lime producing area on a 10-acre basis would not allow the operator to recover on his investment, much less make a profit.

Almost coincidentally with this action, the Texas State Railroad Commission formulated a rule governing such development areas as Burkburnett, where wells have been drilled on plots as small as 40x160 feet, this rule making it necessary, provided the regulation sticks, for wells in Texas development to be located at least 200 feet apart.

Further developments in the Kemp-Munger-Allen "wildcat," southwest of Iowa Park, in the Greater Wichita Falls district of Texas, have demonstrated that this test will make a commercially productive well, opening up new territory, but the exact worth of the test still remains uncertain.

Texas Panhandle And New Mexico Testing Gains

Impetus is being gained in the "wildcatting" campaign sweeping over the Texas Panhandle and into New Mexico, where the Pennsylvanian formation is to be found at varying depths. Two of the latest major interests to block up large acreage in the Panhandle are the Texas Pacific Coal & Oil Company and the Prairie Oil & Gas Company, both of which chose Hartley county. The General Oil Company of California also has entered the Panhandle, getting ready at the present time to put down its first test.

Twelve miles south of Tucumcari, in New Mexico, a flow of gas encountered in the McGee well is encouraging operations, a large number of tests already being under way in most of the counties in the eastern part of the state. The Tularosa Basin, of south central New Mexico, also is getting a testing.

Oklahoma Production Shows 1,100-Barrel Gain

Oklahoma new production during the week showed a gain of 1,100 barrels over the new production of a week ago and brought total Oklahoma daily production above the 221,000-barrel mark. The most interesting well of the week is that of the March Oil Company, a mile northwest of Cushing, which is flowing 12 barrels an hour thru twenty feet of caving. It is expected to prove a big well, as the sand, found at 3,308 feet, is believed to be the Bartlesville. Leasing is proceeding with great enthusiasm near this test.

Kansas produced a number of good wells during the week, the best of which is the No. 2 Spenden of the Gypsy Oil Company, which is swabbing 3,000 barrels a day from a total depth of 2,474 feet.

Late Field News

Staff Specials

FORT WORTH, Nov. 11.—Cosden Oil & Gas Company has drilled No. 5 Hamilton, in the Desdemona district, to what appears to be a second pay at 2,820 feet, where the well is making 1,500 barrels. After getting the first pay around 2,700 feet, a small well resulted when shot. Before reaching the second pay the drill passed thru a hard lime shell at 2,315 feet. As a result of the Cosden Oil & Gas Company operations, it is expected that a large number of the smaller wells in the Desdemona district will be deepened. Nearly all the wells in the heart of the district, where intensive development brought about quick depletion, and in other instances the saturation of the sand with salt water from wells that had been drilled too deep. Most all the wells are now being put on the pump. Wells east and west of the Desdemona townsite, and particularly those farthest removed therefrom, are still holding up relatively well.

FORT WORTH, Nov. 9.—About 35 barrels of oil daily is being obtained from the Hamilton county well of the Gladys Belle Oil Company, of Tulsa, No. 1 Blansitt, about five miles southwest of the town of Hamilton. Pumping exhausts this well each day in about six or seven hours. Before final completion as a pumper, this well stood for several months with approximately 1,000 feet of fluid in the hole after a shot.

WICHITA FALLS, Nov. 10.—General Oil Company test along bank of Red river in Block 821, a mile in advance of production in the northwest extension at Burkburnett, is showing oil and will make a well. The test is still closed down and its exact worth remains unknown.

SHREVEPORT, LA., Nov. 10.—Arkansas Natural Gas Company has completed one of its Shaw tests, Sec. 30, Homer, Louisiana pool, for 1,200 barrels in the deep pay. This makes a total of 9 deep pay completions at Homer, all but one of which are rated good for 10,000 to 30,000 barrels initial production each. The exception is Gulf Refining Company's Chatham, which made 3,200 barrels from the top of the pay and has not been fully drilled in. Arkansas natural well extends the deep pay production to the northwest.

Kemp-Munger-Allen "Wildcat," Near Iowa Park, Being Closely Watched

Staff Special

FORT WORTH, Nov. 10.—Kemp-Munger - Allen "wildcat" test, southwest of Iowa Park, began flowing between 35 and 40 barrels an hour, initial production, after being drilled approximately 8 feet deeper in the pay. This was the well in which packer was set to shut off water from behind the casing after it had shown for a well upon touching the sand. When water was cased off it appeared good only for 50 to 100 barrels, as there was little pressure behind it, but deeper drilling on November 8 to a total of about 8 feet brought a response, the well showing good on a few hours' gauge for between 800 and 900 barrels initial.

WICHITA FALLS, Nov. 9.—With 632 tests drilling, most of them inside proven territory, and with 162 others located in the northwest extension to the Burkburnett field, the turning of attention to the "wildcat" territory surrounding the Kemp-Munger-Allen well, seven miles southwest of Iowa Park, means that the latter area will come in for development additional to that already going on, there being little apparent diminution to the operations in the wonderfully rich pool marked by the Burk-Waggoner "discovery" last April.

Production of the northwest extension, as represented by pipeline runs, amounted to 58,166 barrels, November 1, but this probably is no more than 25 per cent of the possible daily output of the field, as shown by initial production figures printed elsewhere in the current issue of **National Petroleum News** and commented upon regarding their possible worth after having been shut down on top of the pay, a result to come from the crude oil congestion coincident with intensive drilling operations. There are now reported to be 508 wells in the so-called northwest extension, of which number 440 have been completed to the point of being ready to turn into facilities for the handling of the crude once it is provided.

In the townsite development area, embracing surounding acreage, production has declined from its high mark of roundly 61,000 barrels daily, last spring, until it is now included with that of the so-called Burkburnett "old pool," embracing 800 feet development to the south, the "old pool" and "townsite area" now having to their credit together 12,690 barrels daily from 1,972 wells.

The Kemp-Munger-Allen "wildcat" lost the casing seat after coming in and showing for a good well about two weeks ago. Work was begun on it and again on November 4 the well slopped over the top of the casing again, but did not have pressure enough to make a steady flow possible. A swab was run on the well and under present conditions it is estimated good for not more than 100 barrels, initial, altho officials of the company say the drill has penetrated the pay only ten inches and that a more thoro test will be made by deepening.

Locations are being made in the general vicinity of the Kemp-Munger-Allen by principal operators in the Greater Wichita Falls district, such as the Ryan Petroleum Company, which took over the Burk-Waggoner "discovery" tract of the northwest extension at Burkburnett; Sinclair Consolidated Oil & Gas Company; the Sun Company; Anaconda Petroleum Company and smaller outfits, recently organized. A 30 acre tract adjoining on the north that on which the Kemp-Munger-Allen hole was drilled is reported to have been taken by W. G. McAdoo, formerly director general of the federal controlled railroads, who was in Wichita Falls, it was announced, on legal business, when the casing seat had been restored to the Kemp-Munger-Allen and the well reopened.

J. A. Kemp, financier of Wichita Falls, who, in addition to his banking interests, is one of the projectors of the railroad being constructed in partnership with Jake Hamon from a point in Comanche county thru the black lime producing area of Eastland and Stephens counties, is one of the owners of the so-called Iowa Park "wildcat." L. R. Munger, one of the other partners, is a Dallas man, who owns the royalty on the Munger cotton gin and has other wide manufacturing interests.

The Kemp-Munger-Allen test may be more accurately described as southeast of Electra and southwest of Iowa Park; the Serrien pool six miles due north; and shallow production two miles south and southeast. Altho not close enough in to the present hole to condemn any territory immediately surrounding, a number of deep dry holes in the general territory have penertated to depths below the level from which the Kemp-Munger-Allen is showing, about 1,700 feet. In nearly all of these deep failures, showings of oil were encountered, but the tests were never commercially productive. These tests were drilled a number of years ago, early in the history of Wichita Falls district development.

Altho Clay county, to the east of Wichita, continues to be watched for important developments calculated to open up extensions to the general "sand country" development area, many of the tests have yet to reach levels where their importance will begin to take on specific interests. In Wilbarger county, to the west of the old Electra field, in both Wilbarger and Wichita counties, the sarch for production continues in advance of the known field. Archer county, to the south, with a small amount of shallow production to its credit, also continues to get a nominal play.

DALLAS, Nov. 10.—Simms Petroleum Company, which recently purchased the Homer pool, Louisiana, properties of W. H. Rowe and others for a sum reported to have totalled $9,000,000, are understood here to hold an option on the Plains Oil & Gas Company acreage and production at Desdemona, Comanche county, Texas. Details are not known outside circles identified with the interested parties.

Pipelines That Buy Oil Common Carriers?

Staff Special

WICHITA FALLS, Nov. 9.—Clarence E. Gilmore, one of the members of the Texas State Railroad Commission, declared in the course of an informal hearing on the pipeline situation at Wichita Falls late in the week that a carrier handling crude oil production which originated at any place other than on a lease of its own was undoubtedly a common carrier, this statement being taken to forecast a declaration by the railroad commission that it would regard as common carriers all short lines thus operated.

A short line system, which handled production from its own leases exclusively, it was indicated, was not regarded as a common carrier, but Gilmore declined to give an opinion with regard to a lease operated on a 50-50 basis, where the pipeline was purchasing the royalty interest in addition to running its own half of the oil. This he considered, so he said, "to be going too deeply into the legal phase."

Declaring that producers in the northwest extension to the Burkburnett field are simply at the mercy of the drilling site proposition, F. G. Swanson, counsel for the investors' association at Wichita Falls, made the statement that nine-tenths of the men posing as oil operators were simply gamblers and that they were "moral cowards as well." This is proved, he said, by the fact that "we are coping with the same situation that developed in the townsite field a year ago."

Others heard by the commission spoke of the need of a common purchaser act, which would handle the other end of the pipeline situation. Interstate pipelines did not figure to any extent in the hearing, which was directed largely against the conditions surrounding the marketing of crude, allegedly at less than the prevailing posted price, which producers charge has been a demand of gathering systems connected to tank cars leading racks before they would take the crude.

FORT WORTH, Nov. 9.—It is unofficially announced in operating circles in the north Texas oil fields that T. B. Hofer, of the Humble Oil & Refining Company, in charge of the district headquarters offices at Fort Worth, has resigned, effective December 1. In the absence of an official statement his intentions are not generally known.

LEXINGTON, KY., Nov. 11.—Ira C. Huff, organizer and president of the Huff Oil & Gas Company ,capitalized at $1,500,000, and with offices at Lexington, has sold entire holdings of the company to the Superior Oil Company for $180,000. Properties involved comprise 1,000 acres in Wolf and Powell counties, Ky., on which there are 14 producing wells, including the big well brought in several months ago near Torrent, the biggest in Wolf county. Possession has been given and the purchasing company will proceed with the development of several leases involved.

Association Urges One Well To Fifteen Acres In Ranger Territory

Staff Special
FORT WORTH, Nov. 8

A CAMPAIGN inaugurated with industrial morals as its background, at the first annual meeting in Fort Worth, November 4, of the Texas division of the Mid-Continent Oil & Gas Association, contemplates vigorous suasion against what may be termed intensive drilling operations in the general Ranger or black lime producing area of the Texas light oil district. Not more than one well to 15 acres is contemplated.

Altho the term "intensive drilling operations" has been more or less associated in Texas development with town lots and plots of acreage, as at Burkburnett, leading operators at the association meeting saw a no less ominous situation in the conditions existing at Ranger and in the general black lime producing area. There, it is pointed out, the drilling of wells close to lease lines or in corners of large tracts, has forced owners of neighboring leaseholds to protect themselves with offsets to the extent that in many cases a test hole on say a 640-acre tract is made in a corner where the drilling forces similar operations on the part of all three neighbors.

Such conditions, coupled with the drilling of wells as closely as one test to each ten acres, brought up the subject for discussion at the annual association meeting, it being pointed out among other things that in general practice there is no such thing as an operator in the black lime producing area of Texas drilling his leaseholds on a 10-acre basis and making a profit.

This point was brought out by W. S. Farish, vice-president of the Humble Oil & Refining Company at Houston, and formerly president of the Gulf Coast Producers' Association.

Both Mr. Farish and Underwood Nazro, the latter second vice-president of the Gulf Production Company at Houston, referred to the practice of drilling wells within 250 feet of lease lines, whereas it was pointed out that under the conditions existing in this general territory the best ends of the industry would be served by locating these wells 750 feet back from the lines. It was pointed out in the course of the discussion that it had been customary at Ranger to locate one's own wells 350 feet apart, the situation along lease lines being that they were not more than 700 feet apart.

Messrs. Nazro and Farish admitted their own companies had been offenders along with the rest, but sought in their discussion to bring about a normal situation wherein the best interests of the industry could be served. Their arguments and brief remarks of approval from others resulted in the appointment of a committee after the campaign had been indorsed by vote of members present, this committee to work toward the end of bringing about the desired situation.

This committee consists of W. B. Pyron, third vice-president, Gulf Production Company, Fort Worth, chairman; G. Clint Wood, Woodburn Oil Corporation, Wichita Falls; Frank Cullinan, Republic Production Company, Dallas; J. D. Corlett, individual operator, Fort Worth, and T. B. Hofer, in charge of the north Texas operations of the Humble Oil & Refining Company.

As the argument on the question went ahead prior to the membership giving its vote of approval to a resolution of Mr. Farish for the appointment of the committee, it was pointed out that the Ranger pay is deeper than the deepest productive level in the Pennsylvania fields, where, he declared, wells were spaced 800 feet apart. In Ranger territory, the situation as regards more closely drilled wells has been found by the principal operators to be creating unnecessary expense in a development area where costs are already exorbitant.

The contention was made that the same amount of oil could be recovered in Ranger territory with the drilling of 50 per cent of the number of wells that are going down, in general practice, at the present time on proven leases. This is particularly necessary as a remedial measure, it was pointed out, because of the great depths—3200-3300 and 3400-3500 feet to which it is necessary to drill before the producing horizon is reached, either in the Ranger pool proper of Eastland county, or in the two pools (Caddo and Breckenridge) of Stephens county.

A statement was made at the meeting to the effect that the average well drilled in Ranger territory cost from $50,000 to $60,000, and this general statement is borne out in figures compiled by **National Petroleum News** showing the lowest cost at which a well can be drilled in any division of the black lime producing area is more than $40,000 and from that figure upward to $60,000. Tables showing such costs appear in the current issue of **National Petroleum News** in connection with this review.

Stephens County Costs Highest

According to **National Petroleum News** figures, which are based upon reference to cost sheets of various wells in Ranger territory, an average being struck as far as possible to account for varying conditions in individual wells, it is possible to drill more cheaply in the Ranger pool proper than in Stephens county or the Desdemona district. This is necessarily true for the reason that no railroad traverses Stephens county, and every load of material or equipment used in the development of either the Caddo or the Breckinridge pool must be transported overland at least 20 miles. Similarly, the Desdemona district is 18 miles southeast of Ranger, and something like the same distance from Stephensville, Erath county, another unloading point for that development area.

Haulage costs, and other similar expenses, therefore, vary according to whether the operator maintains truck fleets, tractor auxiliaries or whether his material and equipment is moved by teaming, the latter usually under contract and at far greater expense. The relative proximity of the Ranger pool proper to railroad facilities as against Desdemona and Stephens county being removed therefrom, brings about a situation wherein the cost of a completed well often goes measurably higher than the average should it be necessary to get on the lease with a drilling outfit within a specified short period.

Unexpected contingencies frequently arise, so that no set of figures, even though based upon actual operations, will be safe to figure against except in such cases as the operator maintains his own truck fleets and tractor auxiliaries, and provides against the whole of his development campaign within his own organization. Even then his calculations may be upset at times, carrying the cost higher, but **National Petroleum News** figures reproduced herewith may be considered a safe minimum and representative of average expense.

Records down to November 1, 1919, show that there have been completed in the general Ranger territory since the Texas Pacific Coal & Oil Company drilled in its McClosky "discovery" at Ranger, in October, 1917, a total of 821 wells that are still producing. This general territory has to its discredit roughly 275 dry holes, of which roughly 50 were Ranger pool proper producers, since being abandoned. These figures take into consideration only Stephens, Eastland and Comanche counties, together with that part of Erath county tested as a part of the Desdemona district.

Within this same scope of territory there were drilling November 1, 948 tests and rigs were up or locations definitely made for 895 others. These were divided thus:

	W'ls	Dl'g	Rigs	Dry
Desdemona District	238	239	192	100
Eastland County (Ranger)	368	287	344	150
Stephens County	215	...	...	25
Breckinridge	...	103	95	...
Caddo	...	320	264	...
Total	821	948	895	275

Using as a basis, the **National Petroleum News** figures appearing herewith, the 368 wells at present producing at Ranger cost the owners $15,162,204 to complete, without taking into regard the lease costs nor 50-50 drilling contracts which some of the principal operators made with the Texas Pacific Coal & Oil Company to obtain the acreage they are now developing. Add to this figure, the $6,180,450 that the Eastland county dry holes have cost and one has a total of $21,343,154, or more than the value of the oil produced, still without giving any regard to lease costs.

In conection with this statement, figures compiled by **National Petroleum News,** and appearing in the July 16 issue, last, showed that wells 14 months old had declined from the maximum initial production as of July 1, 95.8 per cent. Wells only two months old had declined approximately 40 per cent and wells three months old about 60 per cent.

Using separate groups of wells to reach representative decline of the Ranger pool proper it was found that an essentially accurate estimate would place the total production of the Ranger pool proper up to July 1 at roundly 11,500,00 barrels. Since that time, the pool has fluctuated with daily production of from 65,000 to 75,000 barrels, so that it will be apparent the field when considered as a whole has little more than paid for the actual operations that have gone on, to say nothing of lease investment.

In the two years since the discovery well at Ranger was drilled, development has been such that the field mark of the Ranger pool proper is conceded to have been reached.. Therefore, it may be expected that some remedial steps will have to be taken such as intended by the campaign against intensive drilling, to put on a generally profitable basis the territory in which 287 wells are now drilling, at a minimum cost of $11,825,261, based on **National Petroleum News** tables accompanying, and 192 rigs and locations, which as completed wells, will add more than $7,806,720 additional operating investment.

Using the same tables as a basis for computing the operating investment of Stephens county, and for the purpose of this review averaging Caddo and Breckinridge costs to obtain the approximate expenditure, roughly, 25 failures cost the operators $1,211,400, which, with $10,418,040 spent on producing wells, brings the investment to $11,629,440 before a maximum daily production of 49,000 barrels daily could be obtained and the present daily average production amounts to about 42,000 barrels.

There are now drilling in the Breckinridge pool 103 tests estimated to cost completed $5,166,377, and 95 rigs or definitely made locations will eventually cost another $4,765,205, or more. In the Caddo pool, about eight or ten miles east of Breckinridge development, 320 drilling wells will cost no less than $14,961,280, and 264 rigs or definite locations stand to make an additional expense of $12,243,056.

In the Desdemona district, 238 completed producing wells cost $9,677,080, besides roughly 100 failures in the territory surrounding in Comanche and Erath county, which add another $4,066,000 to the investment, or $13,743,080 to get a maximum estimated potential production of 75,000 barrels at its height, before salt water came into townsite wells and the daily production has dwindled from a high mark of 48,500 barrels daily, taken by pipe lines, to present runs of roundly 32,750 barrels daily, account of quick depletion and the presence of salt water in some of the wells. There are 238 drilling wells, or tests, which will cost a minimum of $9,677,080 in the Desdemona district, and 192 rigs or definite locations will bring the investment of the future to upwards of $7,806,720, to say nothing of others to be made.

These figures show that the minimum investment made, or in the course of making in the four divisions of the general Ranger producing area—Caddo and Breckinridge pools of Stephens county, Ranger pool proper of Eastland county and the Desdemona district—upwards of $125,000,000, divided on the bases of the operations and **National Petroleum News** drilling cost tables, as follows:

Completed wells (producing)	$ 35,257,824
Completed wells (dry)	11,457,850
Drilling wells or tests	41,609,998
Rigs or definite locations	38,988,813
Total	$127,270,575

And these figures do not give any consideration to Palo Pinto county, within the black lime territory generally, where deep tests have shown oil but have never been completed as commercial producers; the northern part of Stephens county, where two or three 4,100-foot wells have made small quantities of oil and many tests are being made; Young county, or Shackelford, or others in the general Ranger territory that are not regarded as at present actually producing fields, altho showings have been sufficient to bring about a lot of field work.

Under these conditions, it will be apparent why the Texas division of the Mid-Continent Oil & Gas Association was anxious to put itself on record against excessive and unnecessary drilling, which in another way threatens the operators in the black lime territory just as seriously as thickly drilled wells at Burkburnett became a menace, thru congestion of crude.

Commission Has Burkburnett Plan

As regards such operations as went on at the height of the Burkburnett excitement, resulting in a situation where there were 508 producing wells in the northwest extension, November 1, a total of 632 drilling and 162 rigs and locations, a plan has been advanced for consideration by the Texas State Railroad Commission, this plan being intended to prevent wholesale waste and congestion thru the limiting of operations to a distance of 200 feet or more to an adjoining tract or farm. The rule follows:

"No well for oil or gas shall hereafter be commenced nearer than 200 feet to an adjoining tract or farm, and no well shall be drilled nearer than 100 feet to any property line. Provided, that the commission, upon petition filed showing that adequate provision can and will be made against danger of fire and of injury to life or property, and provided that no injustice will be done, may, after hearing had, allow drilling within shorter distances than as above prescribed."

Chief Supervisor George C. Butte, of the oil and gas department of the railroad commission, in announcing the hearing, gave out the following statement:

"The oil and gas department of the railroad commission has been studying the question of overproduction in certain oil fields in Texas. It regards overproduction as a form of wholesale waste. The fire hazard is enormously increased when derricks are so close together as almost to touch.

"Enormous waste and peril necessarily is resulting. In the eastern fields there is a fixed custom that wells shall be drilled not nearer than 200 feet from any well. The same rule was early adopted by the federal government in Oklahoma, and is written in as a term and condition of every government lease. As a result fire risk is reduced to a minimum and the production is held down and the oil resources of the state are husbanded for the future while giving a reasonable opportunity for profits in the present.

"In Texas, on the contrary, there has been no regulation or restriction. Wildcat companies that have no more acreage than a drilling site of 40x60 feet of proven territory, have sprung up everywhere and flooded the newspapers with advertisements of stock. Bitter line fights are constantly taking place and each operator is trying to save his property from drainage against scalpers, who drill wells immediately up to his property line.

"It is, of course, beyond the power of the railroad commission to undo what has been done and to require derricks to be scrapped and wells to be plugged, whose owners have not shown a proper desire to conserve and husband the wealth of the state.

"In pursuance of the provisions of chapter 155 of the acts of the Thirty-sixth legislature, being an act to conserve the oil and gas resources of Texas, and moved by a desire to prevent the recurrence in the future of the deplorable conditions existing in some of our congested oil fields and to prevent wholesale waste, the railroad commission has set down for hearing on November 10, 1919, a new rule, to be known as rule 37.

"This rule shall take effect thirty days from the date of this order. It is the opinion of the chief supervisor of the oil and gas department that this is the most important and the most effective rule that the railroad commission could possibly adopt to conserve the oil and gas resources of Texas, not only for the present, but, what is more important, for future generations."

Royalty Splits Aggregate

This propostion, as affecting similar situations to that at Burkburnett, did not, however, come up at the meeting of the Texas Division of the Mid-Continent Oil & Gas Association. Another subject that did come up, nevertheless, was that in which the working interest or royalty in a property is often split into a number of parts or syndicated. This has been a source of aggravation to the operators, who often have not known to whom to make payments. A resolution was adopted that it was the sense of the meeting that where the working interest is divided into more than six parts, or the royalty is divided into more than eight parts, that it is the sense of the association that a trustee should be named by the working interest or royalty interest to receive the funds and disburse them.

A somewhat similar difficulty has been encountered with regard to rentals on non-productive leases, where the ownership has been cut up into a large number of shares with the result that the association seeks thru moral suasion to bring about a situation where such conditions will be improved thru the appointment of trustees.

After the business session, at which President W. D. Cline of Wichita Falls, presided, the members were guests at the River Crest Country Club until a late hour. Judge J. A. Veasey, of Tulsa, counsel for the Carter Oil Company, was a speaker, reviewing the work of the Mid-Continent Oil & Gas Association, with headquarters at Tulsa, altho its tax committee spent months at Washington to bring about more equitable application by the treasury department of excess profits tax legislation.

Judge Veasey sounded a warning of a rumor that had recently come from Washington to the effect that the treasury department is not satisfied with its present tax on the oil industry and will seek the repeal of remedial legislation obtained thru the efforts of the Mid-Continent Association committee last year.

Clarence E. Gilmore, of the Texas State Railroad Commission, was present,

as he expressed it, "particularly because I wanted to meet you men face to face and tell you that in enforcing the conservation law, which comes under our jurisdiction, we want to have you help us and we want to help you."

Officers Are Re-elected

The annual election of officers of the Texas division resulted in the re-naming of the incumbents, as follows:

W. D. Cline, individual operator, Wichita Falls, president.

J. Edgar Pew, vice president Sun Company, Dallas, vice president.

W. H. Massie, financier, Fort Worth, treasurer.

Howard Bennette, Dallas, secretary.

An executive committee was named, consisting of W. B. Pyron, vice president Gulf Production Company, Fort Worth; John V. McMahon, vice president Sinclair Consolidated Oil & Gas Company, Fort Worth; Walter D. Cline, individual operator, Wichita Falls; J. Edgar Pew, vice president and general manager of all producing properties, Sun Company, Dallas; F. M. Lege, Jr., Lone Star Oil & Gas Company, Dallas; Frank Cullinan, Republic Production Company, Dallas; Cal K. Clark, vice president Standard Oil Company of Louisiana and president of Oklahoma Pipeline Company, Shreveport; Roy B. Jones, president Panhandle Producing & Refining Company interests, Wichita Falls; W. C. Woolf, of Keen & Woolf, individual operators, Shreveport; R. A. Sperry, superintendent of production, Texas Pacific Coal & Oil Company, Thurber; C. M. Root, of Root, Hupp & Duff, Eastland; W. B. Sutton, Prairie Oil & Gas Company, Eastland; T. M. Dees, Hogg Creek Petroleum Company, Midlothian; J. D. Collett, individual operator, Fort Worth; H. J. Mourland, Oil Well Supply Company, Fort Worth; Clint Wood, Woodburn Oil Corporation, Wichita Falls, and C. H. Clark, individual operator and president of Wichita County Producers' & Refiners' Association.

Cost Figures On Completed Wells In General Ranger Territory

ESTIMATED COST OF WELL IN RANGER POOL PROPER.*

(Eastland County, Texas)

1—84x22 foot sway braced standard rig completed with 6-foot Ideal rig irons	$ 5,000
Drilling—	
3,400 feet drilling at $4 a foot	13,600
Drilling in operation at $100 a day	1,500
10 days' shutdown at $100	1,000
Fuel and Water—	
90 days' gas at $10 a day	900
90 days' water at $7.50 a day	605
Equipment—	
Two 250-barrel wood water tank	450
One 500-barrel steel tank	500
1,800 feet 2-inch line at 30 cents a foot	540
One gas engine	1,100
10-inch by 90-foot 6-ply rubber belt	130
One 2½ by 85-foot bull rope	56
One 12½-inch common casing shoe	33
One 10-inch Texas pattern casing shoe	50
Ane 8¼-inch Texas pattern casing shoe	33
One 6⅝-inch Texas pattern casing shoe	30
24 2-inch tees, 24 ells, 12 2-inch stop-cocks, 12 2-inch plugs and 24 2x6 nipples	50
Freight and Haulage (estimated)	3,000
Casing—	
500 feet 15½-inch, 70-lb. casing at $5.65	2,825
1,000 feet 12½-inch, 50-lb. casing at $3,55	3,550
1,800 feet 10-inch, 40-lb. casing at $2.89	5,202
2,300 feet 8¼-inch, 32-lb. casing at $1.84	4,232
3,400 feet 6⅝-inch, 24-lb. casing at $1.66	4,644
220-quart shot at $4.60 a quart	1,012
Ten per cent added for unforeseen expenses	4,939
Total cost of completed well	$54,041
Salvage (all but 6⅝-inch casing), less 15 per cent depreciation	12,838
Net cost of producing well	$41,203

*The Ranger pool proper, where some leases have been entirely drilled up and which is more closely located to railroads than other fields in the general black lime producing territory, is for these reasons more cheaply operated, these figures having due regard for the present use of trucks and tractors.

ESTIMATED COST OF WELLS IN DESDEMONA DISTRICT**

(General Ranger Territory)

1—84-foot by 22-foot sway braced standard rig with 6-inch Ideal rig irons	$ 5,400
Drilling—	
3,000 feet at $5.50 a foot	16,500
Drilling in at $150 a day	900
10 days' shutdown at $100 a day	1,000
Fuel and Water—	
60 days' fuel at $20 a day	1,200
60 days' water at $10 a day	600
Equipment—	
Two 250-barrel wood water tanks	450
One 500-barrel steel tank	500
1,800 feet 2-inch line at 30 cents a foot	540
One gas engine	1,100
10-inch by 90-foot 6-ply rubber belt	130
One 2½ by 85-foot bull rope	56
One 12½-inch common casing shoe	33
One 10-inch Texas pattern casing shoe	50
One 8¼-inch Texas pattern casing shoe	33
One 6⅝-inch Texas pattern casing shoe	30
24 2-inch tees, 24 ells, 12½-inch stop-cocks, 12 2-inch plugs, 24 2x6 nipples	50
Freight and Haulage	3,500
Casing—	
200 feet 12½-inch, 50-lb. casing at $3.55	7,100
700 feet 10-inch, 40-lb. casing at $2.89	2,033
2,000 feet 8¼-inch, 32-lb. casing at $1.84	3,680
3,000 feet 6⅝-inch, 26-lb. casing at $1.66	4,980
3,000 feet of 2-inch, 18-lb. line pipe at 30 cents a foot	540
2,800 feet ⅝-inch sucker rods	210
200 feet 2-inch, 4½-lb. tubing	870
Average shot when necessary, 80 quarts	368
Unforeseen expense	2,000
Total	$53,473
Salvage, including depreciation	12,813
Net cost of producing well	$40,660

**Desdemona district operations, being more feverish than elsewhere in the black lime producing territory, ordinary costs of operation, such as fuel, water, teaming, etc., are comparably higher.

ESTIMATED COST OF WELL IN BRECKINRIDGE POOL

(Stephens County, Texas)

1—84-foot by 22-foot sway braced standard rig with 6-foot Ideal rig iron, California pattern	$ 5,100
Drilling—	
3,300 drilling at $5.50 a foot	18,150
15 days' under-reaming at $75 a day	1,150
15 days' shutdown at $100 a day	1,500
Fuel and Water—	
90 days' gas at $10 a day	900
90 days' water at $7.50 a day	605
Equipment—	
Two 250-barrel wood water tanks	450

One 500-barrel steel tank	500
1,800 feet 2-inch line at 30 cents a foot	540
One gas engine	1,100
10-inch by 90-foot 6-ply runner belt	130
One 2½-inch by 85-foot bull rope	56
One 12½-inch common casing shoe	33
One 10-inch Texas pattern casing shoe	50
One 8¼-inch Texas pattern casing shoe	33
One 6⅝-inch Texas pattern casing shoe	30
Twenty-four 2-inch tees, 24 ells, 12 2-inch stop cocks, 12 2-inch plugs and 24 2x6 nipples	50
Freight and Hauling	5,000
Casing—	
350 feet 5½-inch, 70-lb. casing at $5.65	1,977
800 feet 12½-inch, 50-lb. casing at $3.55	2,840
1,400 feet 10-inch, 40-lb. casing at $2.89	4,046
2,200 feet 8¼-inch, 32-lb. casing at $1.84	4,044
3,300 feet 6⅝-inch, 26-lb. casing at $1.66	5,418
220-quart shot of nitroglycerin at $4.60 a quart	1,012
Ten per cent added for unforeseen expenses	6,466
Total cost of completed well	$61,130
Salvage (all but 6⅝-inch casing), less depreciation	10,971
Net cost of producing well	$50,159

ESTIMATED COST OF WELL IN CADDO POOL

(Stephens County, Texas)

1—84-foot by 22-foot sway braced standard rig, completed, with 6-foot Ideal rig irons, California pattern	$ 5,300
Drilling—	
3,500 feet at $4.50 a foot	15,750
15 days' under-reaming at $75 a day	1,125
15 days' shutdown at $100 a day	1,500
Fuel and Water—	
60 days' gas at $10 a day	600
60 days' water at $7.50 a day	450
Equipment—	
Two 250-barrel wood water tanks	450
One 500-barrel steel tank	500
1,800 feet 2-inch line at 30 cents a foot	540
One gas engine	1,100
10-inch by 90-foot 6-ply rubber belt	130
One 2½-inch by 85-foot bull rope	56
One 12½-inch common casing shoe	33
One 10-inch Texas pattern casing shoe	50
One 8¼-inch Texas pattern casing shoe	33
One 6⅝-inch Texas pattern casing shoe	30
Tees, ells, stop-cocks, plugs and nipples	50
Freight and Hauling (estimated)	5,000
Casing—	
350 feet 15½-inch, 70-lb. casing at $5.65	1,977
800 feet 12½-inch 50-lb. casing at $3.55	2,840
1,400 feet 10-inch, 40-lb. casing at $2.89	4,046
2,200 feet 8¼-inch, 32-lb. casing at $1.84	4,044
3,500 feet of 6⅝-inch, 24-lb. casing at $1.66	5,810
260-quart shot of nitroglycerin at $4.60 a quart	1,196
Ten per cent additional for unforeseen expenses	5,118
Total cost of well	$57,725
Less salvage (all but 6⅝-inch casing)	10,971
Net cost of producing well	$46,754

ESTIMATED COST OF WELL IN PALO PINTO COUNTY

(Mineral Wells District)

1—84-foot by 22-foot sway braced Standard rig completed with 6-foot Ideal rig irons, California pattern	$ 5,000
Drilling—	
4,100 feet of drilling at $5.50 a foot	22,500
Drilling in operation, at cost of $150 daily	1,400
Gas and Water—	
120 days' fuel at $10 a day	1,200
120 days' water service at $7.50 a day	900
Equipment—	
Two 250-barrel wood water tanks	450
One 500-barrel steel tank	500
1,800 feet 2-inch line at 30 cents a foot	540
One gas engine	1,100
10-inch by 90-foot 6-ply rubber belt	130
One 2½-inch by 85-foot bull rope	56
One 12½-inch common casing shoe	33
One 10-inch Texas pattern casing shoe	50
One 8¼-inch Texas pattern casing shoe	33
One 6⅝-inch Texas pattern casing shoe	30
Twenty-four 2-inch tees, 24 ells, 12 2-inch stop cocks, 12 2-inch plugs and 24 2x6 nipples	50
Freight and Hauling (estimated)	2,000
Casing—	
300 feet 15½-inch 70-lb. casing at $5.65	1,695
900 feet 12½-inch 50-lb. casing at $3.55	3,195
1,500 feet 10-inch, 40-lb. casing at $2.89	4,335
3,000 feet 8¼-inch 32-lb. casing at $1.84	5,520
4,100 feet 6⅝-inch, 26-lb. casing at $1.66	6,806
400-quart shot of nitroglycerin at $4.60 a quart	1,840
Ten per cent added for unforeseen expenses	6,348
Total cost of completed test	$65,711
Salvage (all but 6⅝-inch casing, less 15 per cent for depreciation)	13,384
Net cost of producing well	$52,357

ESTIMATED COST OF WELL IN NORTHERN STEPHENS COUNTY, AND SOUTHERN YOUNG COUNTY

(Also approximately for Shackelford County)

1—84-foot by 22-foot sway braced standard rig, completed, with 6-foot Ideal rig irons, California pattern	$ 5,000
Drilling—	
3,800 feet drilling at $5.50 a foot	19,220
Drilling in operation at $100 a day	900
40 days' under-reaming at $75 a day	3,000
30 days' shut-down at $100 a day	3,000
Fuel and Water—	
120 days' fuel at $10 a day	1,200
120 days' water at $7.50 a day	900
Equipment—	
Two 250-barrel wood water tanks	450
One 500-barrel steel tank	500
1,800 feet 2-inch line at 30 cents a foot	540
One gas engine	1,100
10-inch by 90-foot 6-ply rubber belt	130
One 2½-inch by 85-foot bull rope	56
One 12½-inch common casing shoe	33
One 10-inch Texas pattern casing shoe	50
One 8¼-inch Texas pattern casing shoe	33
One 6⅝-inch Texas pattern casing shoe	30
Twenty-four 2-inch tees, 24 ells, 12 2-inch stop cocks, 12 2-inch plugs and 24 2x6 nipples	50
Freight and hauling at	3,000
Casing—	
300 feet 20-inch, 90-lb. casing at $6.06	1,818
700 feet 15½-inch, 70-lb. casing at $5.65	3,155
1,200 feet 12½-inch, 50-lb. casing at $3.55	4,260
1,700 feet 10-inch, 40-lb. casing at $2.89	4,976
2,400 feet 8¼-inch, 32-lb. casing at $1.84	4,476
3,800 feet 6⅝-inch, 24-lb. casing at $1.66	5,375
360-quart shot nitroglycerin at $4.60 a quart	1,556
Ten per cent additional for unforeseen expenses	6,555
Total	$71,463
Salvage (all but 6⅝-inch casing), less 15 per cent depreciation	15,628
Net cost of producing well	$55,835

Oklahoma Production Passes 221,000 Barrel Mark In Week

Staff Special
TULSA, Nov. 9

CONTINUING her upward stride in production, Oklahoma, during the past week surpassed her daily record of the week previous by 1,100 barrels, and the daily production is now over the 221,000-barrel mark. A summary of the week's completions shows a number considerably below that of a week before, however, in spite of the fact that better weather has prevailed over the Oklahoma-Kansas district. A great number of extraordinary wells have been brought in, in the Peabody-Elbing fields, in Marion and Butler counties, Kansas.

Swabbing at the rate of 3,000 barrels daily, the Gypsy Oil Company No. 2, Spenden farm, in the northeast corner of the southeast of the southeast of Sec. 5-23-4E, in the Elbing field, is the best producer completed there for some time. It found sand at 2,461 feet, and drilling was stopped at 2,474 feet. Ramsey and others, on the No. 1, Lathrop farm, in the southeast corner of the southwest of the southwest of Sec. 17-23-4E, which found sand from 2,363-83 feet, is now swabbing 50 barrels per hour. It flowed 10 barrels per hour before the swab was put in the hole.

The Empire has two dandy wells on the Lathrop farm, No. 1, in the southeast corner of the northwest of Sec. 17-23-4E, on the so-called North 80, swabbing 1,200 barrels daily at 2,327 feet; and No. 2, on the same 80, in the northwest corner of the southwest of the northwest of the section, swabbing 1,000 barrels from sand found at 2,373 feet. The total depth is 2,418 feet.

To Drill Deeper

It is very probable that No. 1, Lathrop, will be drilled deeper. Watchorn and others No. 3, Jolliffe farm, in the center of the south line of the northwest of the southwest of Sec. 4-22-4, is estimated good for 900 barrels. The Elmhurst Development Company No. 3, Sinex farm, in the southwest corner of the northwest of the southwest of Sec. 10-22-4, found sand at 2,500 feet, and at 5 feet in, is estimated good for 700 barrels, the hole being full of oil. D. M. Ward has a 500-barrel producer in his No. 3, Leydig farm, in the center of the east line of the northeast of Sec. 18-23-4E, from the sand found from 2,390-2,402 feet. The Phillips Petroleum Company and Deering Marshall No. 1, Paris farm, in the northeast corner of the northwest of Sec. 20-23-4, which was good for 275 barrels from sand from 2,363-75 feet, was drilled deeper to a total depth of 2,411 feet, and went into water, and the status of the well is in doubt.

Watchorn has a well in No. 1, Townsend farm, in the center of the east line of the southeast of the southeast Sec. 5-22-4, there being 1,000 feet of oil in the hole with the sand just touched at 2,461 feet. The Pierce & Pierce No. 1, Burton farm, in the northeast corner of the southwest of the northwest of Sec. 15-22-4, has 2,000 feet of oil in the hole, coming from sand from 2,544-49 feet, and is estimated a 250-barrel well. Phillips Petroleum Company put No. 1, Supernaugh farm, in the center of the south half of the southeast of the northwest of Sec. 4-23-4E, on the pump from sand from 2,410-38 feet, and it made 150 barrels the first 24 hours. Gypsy Oil Company No. 3, Frank Eyestone farm, in the southeast corner of Sec. 7-23-4E, has 2,300 feet of oil and water in the hole from sand from 2,403-11 feet. Ramsey and others No. 3, Lathrop farm in the northwest corner of the northeast of Sec. 17-23-4E, has 2,000 feet of oil in the hole with sand touched at 2,409 feet.

The most interesting wildcat in the state of Oklahoma is the well of the March Oil Company in the southeast corner of the northwest of the southeast of 29-18-5, a mile northwest of Cushing, Payne county. While not being drilled deeper, and with the drilling status of it the same as last week, standing at 2 feet in sand found at 3,308 feet, the well broke loose thru 20 feet of cavings, and has been flowing for the past several days at the rate of 12 barrels per hour. Prediction is made that this will be a big well, particularly if the sand is in the Bartlesville, as it is thought to be. Acreage prices are mounting higher every day, and it is being played for something on the order of a second Yale pool. There is plenty of territory that is uncondemned for a very substantial pool to be located, and enthusiasm is running rife around Cushing and vicinity.

Okmulgee County Development

Chief interest in Okmulgee county continues around Beggs, and particularly in the prospective pool, being opened northwest of that city, in the northwest corner of Township 15-11. The W. J. Purdy and others well in the southwest corner of Sec. 6-15-11, has been drilled 2 feet deeper, to a total depth of 3½ feet in the pay, and the flow seems to have been increased, as shortly after the deepening, it filled up and made a flow of 15 minutes duration over the top of the rig. After the flow, the bailer was run, and not a bit of sand could be brought out, so it is thought that the well is in a gas pay, together with the oil.

The Prairie Oil & Gas Company well, in the southwest corner of the southeast of Sec. 7-15-11, a mile southeast of the Purdy well, which might be termed a "twin" to the Purdy producer, has not been drilled deeper. Gas was discovered around the outside of the small pipe, and a little water showed up in the hole, so the pipe is being re-set before drilling deeper. It has not made any more flows, but the hole stands full of oil with the bit only one foot in the pay at 2,518 feet.

A speedy drilling campaign is expected to take place immediately in the territory between the Purdy and the Prairie wells. The Oklahoma Producing & Refining Company has moved in a rig to offset the Purdy well to the south; A. R. Simons is going to drill on the west line of his 90-acre lease in the south half of the northwest of 7-15-11; the Carter Oil Company intends drilling its lease in the southwest quarter of 7-15-11; Dewey parties owning the south 74½ acres of the southwest quarter of 7-15-11 will offset the Prairie well; and the Gypsy Oil Company, owning the northeast quarter of 7-15-11, intend starting a well right away.

The wildcat of the Denver Producing & Refining Company in the southwest corner of Sec. 8-13-11, southwest of the Youngstown pool, which is showing for from 150 to 200 barrels with sand just touched at 2,550 feet, has not been drilled deeper.

New Deep Sand Pool

Waite Phillips, of Tulsa, drilling the No. 1, Jane Reid farm, in the center of the north line of the southwest of the southeast of Sec. 22-14-11, southwest of Beggs, found sand at 2,757 feet, and at 6 inches in the well filled up and commenced flowing at the rate of 200 barels daily, altho there were 150 feet of cavings in the hole. That it will be a big well is the opinion of all, as it is showing every bit as good as the wells in Sec. 12-14-11, to the northeast, considering the depth in the sand, and the wells in Sec. 12 start off as high as 2,000 barrels. The wells in 12 are the nearest deep sand producers to the Phillips well, and they are three miles to the northeast. There are some Dutcher sand wells around the Phillips test, but none of them amounted to much. Phillips acquired the Jane Reid allotment along with a bunch of other property from the Savoy Oil Company, about a year ago, after the Savoy had drilled several failures, and considered it no good.

The Producers & Refiners Corporation drilled its No. 3, McIntosh farm, in the southeast corner of the northeast of Sec. 12-14-11, to 33 feet in sand, which was found at 2,812 feet, and increased the production to 1,600 barrels, it later settling back to 1,300 barrels. The Simon and others No. 5, in the center of the north line of the southwest of the northwest of the northeast quarter of Sec. 12-14-11, has been drilled about 10 feet in the 2,800-foot sand, and is flowing 30-barrels per hour. The Atlantic Petroleum Corporation No. 5, Bearhead farm, in the south half of the southwest quarter of Sec. 30-15-11, in the Osage Hill pool, is estimated good for 1,000 barrels or better from the Dutcher, or 2,600- foot sand.

After being drilled into water and pronounced no good, the Carter Oil Company No. 2, Tucker farm, in the southeast corner of Sec. 29-2S-3W, in the Fox pool, in Carter county, was put on the pump, and the well made 20 barrels the first day, and it is expected the water will exhaust

itself. The top of the sand from which the well is producing was found at 2,692 feet—the deepest producing strata yet found in the Fox field. There was only 5 feet of sand, and water was found at 2,697 feet, but if it makes a 15-barrel well the Carter will pump it, and other wells will probably be deepened. The hole filled up 1,800 feet with oil before it was pumped down, but there was not enough gas to flow it.

Operations in the Hewitt field have been held up on account of inclement weather, and there is nothing of importance to report following the week's work, other than the Franklin well in the southeast corner of the northwest of the northeast of the southeast quarter of Sec. 21-4S-2W found a second pay at 1,854 feet, and preparations are being made to drill in. The territory south and southwest of the discovery well of the field does not look exceedingly good, and all good pointers are directed toward the north, northeast and east, where shallower sands are being found.

Toward the south and southwest the wells all get salt water instead of oil, and the following are some of the deep ones to suffer this fate: Chickasha Refining Company on the Harrison farm, in the northwest corner of the southwest of Sec. 22-4S-2W, depth 1,920 feet. Simpson No. 1, on the Dillard farm, in the northeast corner of the northwest of the southwest of Sec. 22-4S-2W, depth 2,265 feet. Ketch & Wallace No. 1, in the northeast corner of the southwest of the southwest of the northwest of Sec. 22-4S-2W, depth 1,800 feet. Westheimer & Daube No. 1, Scivelly farm, in the northeast corner of the southeast of the southeast of the southeast of Sec. 28-4-2, depth 1,900 feet. Humble Oil & Refining Company No. 1 Reigers farm, in the southeast corner of the northeast of the southeast of the southeast of Sec. 28-4-2, depth 2,340 feet. Texas Company No. 1, Nolan farm, in the northeast corner of the northeast of the northeast of the northeast of Sec. 28-4-2, depth 1,910 feet. Golden Gate Oil Company No. 1, Gill farm, in the southwest corner of the northwest of the southeast of the northwest of Sec. 34-4-2, depth 2,165 feet. Humble Oil & Refining Company No. 1, Fulton farm, in the northeast corner of the southeast of the southwest of Sec. 35-4-2, depth 2,330 feet.

Thomas Slick and B. B. Jones, who made a killing in the Cushing field in the old days, have had a return of their old-time luck, as their No. 1, on the strip on the Pawnee county side of the Pawnee-Creek county boundary line, south of Jennings, in the northeast corner of the southeast of the southwest quarter of Sec. 34-20-7, is in the Bartlesville pay, and made 1,050 barrels the first 24 hours, later settling down to 900 barrels. Top of sand was found high at 2,690 feet, and best pay was found from 2,545-50 feet, drilling being stopped at the latter depth.

Shortly after Slick & Jones drilled in the big well, John B. Grieves deepened his No. 2, Frank Armstrong farm, in the southeast corner of the northeast of the southwest of the same section—offsetting it to the north—2 feet deeper to 2,754 feet, and increased the production to 500 barrels after it had gone down to 400 barrels.

The operators who drilled the little wells in Secs. 11 and 13-19-7, southeast of the newly opened pool at Jennings are checking up their logs, believing that the wells to the southeast are producing from the Squirrel sand, other

(Continued on Page 70)

Casing, Line Pipe And Tubing Tables For Use In Field Work

Staff Special
FORT WORTH, Nov. 7

FIGURES that will make workable the determining of how many barrels of oil are standing in a hole partially filled up in a field test that will not flow, are to be found in the accompanying casing table, which gives the various sizes, weight per foot, area, capacity, etc., for the uses to which these formulae can be put.

It is possible to compute with these figures the pressure on the bottom of a string of pipe, that is to say the pressure accounted for by liquid in the hole, as either the oil or water test on pipe is hydrostatic. While there is little danger from heavy casing, a lack of due regard for pressure often results in the collapsing of light pipe.

Casing figures, especially compiled to show the specific things given in the following table, also show the exact inside diameter of pipe, which is handy in case of fishing jobs, and other cases where one string of pipe is being run inside another:

Oil Field Casing Table

Size	Wt. Per Ft.	I. D.	Area in Inches	Cap. in Bbls.	Wt. Per Ft. of Water	Wt. Per Ft. of Oil
5 in.	8.500	4.944	19.197	.023	8.474	6.480
5 in.	10.000	4.886	18.749	.023	8.270	6.324
5 in.	13.000	4.768	17.854	.022	7.879	6.025
5 in.	16.000	4.648	16.966	.020	7.488	6.726
5⅛ in.	13.000	5.044	19.981	.024	8.814	6.740
5⅛ in.	17.000	4.892	18.795	.023	8.296	6.344
6¼ in.	13.000	6.255	30.728	.038	13.566	10.374
6¼ in.	17.000	6.135	29.560	.036	13.047	9.977
6¼ in.	24.000	5.913	27.459	.033	12.121	9.269
6⅝ in.	17.000	6.538	33.571	.041	14.815	11.329
6⅝ in.	20.000	6.450	32.674	.040	14.424	11.030
6⅝ in.	24.000	6.334	31.509	.038	13.906	10.634
8¼ in.	17.500	8.249	53.443	.066	23.596	18.044
8¼ in.	20.000	8.191	52.694	.065	23.264	17.790
8¼ in.	24.000	8.097	51.491	.063	22.729	17.381
8¼ in.	28.000	8.003	50.303	.062	22.210	16.984
10 in.	32.515	10.192	81.584	.100	36.023	27.547
10 in.	35.000	10.146	80.849	.099	35.671	27.293
12¼ in.	36.500	12.482	122.365	.151	54.026	41.314
12½ in.	50.000	12.278	118.398	.146	52.275	39.975
15½ in.	52.500	15.396	186.168	.230	82.203	62.861

Figures on Line Pipe

The following figures on line pipe are principally useful in determining the amount of fluid that can be run thru a given sized line. The actual run will be slightly less than shown by the figures, due to friction:

Size	Wt. Per Ft.	I. D.	Area in Inches	Cap. in Bbls.	Wt. Per Ft. of Water	Wt. Per Ft. of Oil
1 in.	1.1688	1.049	.863	.001	.374	.286
2 in.	3.716	2.067	3.355	.004	1.479	1.131
3 in.	7.675	3.068	7.392	.009	3.264	2.496
4 in.	10.980	4.026	12.729	.015	5.618	4.296
5 in.	14.966	5.047	20.005	.024	8.831	6.753
6 in.	19.367	6.065	28.890	.035	12.750	9.750
8 in.	25.414	8.071	51.161	.063	22.584	17.270
8 in.	29.213	7.981	50.026	.061	22.040	16.854
10 in.	32.515	10.192	81.584	.100	36.023	27.547
10 in.	35.504	10.136	80.690	.099	35.623	27.241
10 in.	41.644	10.020	78.854	.097	34.765	26.585
12 in.	45.217	12.090	114.800	.141	50.685	38.759
12 in.	50.916	12.000	113.097	.139	49.937	38.187
14 in.	60.802	14.250	159.484	.197	70.414	53.846
15 in.	64.955	15.250	182.654	.225	80.648	61.672

Computation on Tubing

What was said about casing, and the application of the foregoing figures thereto, will apply largely to tubing, except as regards fishing jobs, the following tabular figures applying to tubing to determine the exact amount of fluid necessary, in barrels, to fill a string of pipe and approximately the number of pounds being lifted. It is interesting to note in connection with figures herein given that the doubling of the diameter of pipe increases its capacity four times. Tubing figures follow:

Size	Wt. Per Ft.	I. D.	Area in Inches	Cap. in Bbls.	Wt. Per Ft. of Water	Wt. Per Ft. of Oil
2 in.	4.000	2.041	3.271	.004	1.436	1.098
2 in.	4.500	1.995	3.125	.003	1.377	1.053
3 in.	7.694	3.068	7.392	.009	3.264	2.496
3 in.	8.500	3.018	7.153	.008	3.153	2.411
3 in.	10.000	2.922	6.705	.008	2.958	2.262
4 in.	10.980	4.026	12.729	.015	5.618	4.296
4 in.	11.750	3.990	12.505	.015	5.516	4.218

Costs Of Tractor Operations In Oil Fields Based On Ton-Mile

Staff Special

DALLAS, TEXAS, Nov. 8

AS the use of tractors in oil field transportation in Ranger territory grows, cost departments of operating companies are gathering data on conditions that affect all methods of carriage of materials and equipment from the "railhead" to the point of usage. Where good roads are available it is patent that there is little need for the track laying type tractor, several types of which have proven for a number of years that they can be operated successfully under adverse conditions. But, there being no good roads in the Texas oil fields, and the prospect for immediate construction of improved highways remote, oil producing companies are gathering all the data they can obtain on methods of operation, costs, etc., usually struggling along to find a way of placing the operation of such units on a unit basis.

Discussing the ton-mile cost basis, which it is necessary to take as a unit, L. B. Patrick, of Dallas, factory representative of one of the tractors being widely sold in the Texas fields, points out that after the ton of material has been delivered to the rail-head it then must be transported to the lease where used.

For the benefit of operators and companies who must make their computations upon a basis that will give them data in its most accurate detail, Mr. Patrick has formulated a daily tractor report and remarks herewith reproduced make possible the working out of necessary information to the tractor user or the tractor buyer. Mr. Patrick says:

Fixed Overhead Charge

"A fixed overhead charge is applicable to any transportation unit. In the case of the tractor hauling unit this varies with the type and construction of this hauling unit and is directly proportional to the class of materials used in the construction of the tractor and trailers and the upkeep of these units, commonly called maintenance, the better the material the less maintenance, the cheaper materials and freak designing causing a greater amount of layoff time and great loss in breakage. This overhead charge is based on two elements: First—the life of the tractor at this class of work. Second—the average cost of maintaining the machine in working order at all times.

"Innumerable elements such as kerosene for fuel in place of gasoline enter into the application of these costs to a tractor hauling unit, and may affect the cost. The writer's opinion is that kerosene is a very fine cleanser for greasy hands, and that its fuel value for a heavy duty 4-cylinder engine is very small.

"Depreciation of a tractor may be safely placed at one per cent of the initial cost per month. Maintenance is a real 'joker' in computing motor hauling goods. With one careful operator it is low—another will have an increase of 300 per cent over the first operator's cost.

"This item for convenience sake may best be divided into three headings: 1—

DAILY TRACTOR REPORT
Use One Car For Each Load

Date ....., 19.. Model ..... Ser. No. .....
Owned by .....
P. O. ..... Located at .....
Via..... Care of .....

TIME RECORD
Left .....A. M.
.....P. M.
Arrived .....A. M.
.....P. M.
Motor hrs. .....
Loading hrs. .....
Unload .....
Time out .....

LOAD
..... Pieces .....
..... of .....
..... of .....
..... of .....Tons .....
..... Mi. .....
..... Mis. empty .....

STOPS
1. .....
2 .....
3. .....
4. .....

Miscel. Exp.
1. ..... $.....
2. ..... $.....
3. ..... $.....

FUEL AND OIL
Fuel Oil
Gal. Cost
..... $.....

Lubricating Oil
Gal. Cost
..... $.....

Track Oil
Gal. Cost
..... $.....

Grease
Gal. Cost
..... $.....

Condition of road .....
Fuel and oil required for reserve .....
Repairs needed .....
Condition of wagon or tractor.....
.....Driver .....Supt.
Note: Driver does not fill price of oil and fuel.

Operating costs—for Office:
Wages—Driver $..... Helper $..... $.....
Exp.—Driver and Helper $.....
Total above daily exp. $.....
Depreciation 1 per cent per mo. $.....
Maintenance 1/10 per cent per day $.....
Administration 10 per cent total $.....
Total $.....

Misc. loaded tons—Ton miles .....
Cost per ton mile .....
P. O. .....

Instructions

1. For Operator: Put specific amounts and weights on this card.—Do not guess. Show all stops and describe. Do not exceed 3½ M. P. H. on road. Change motor oil twice weekly. Clean oil does not burn bearings. Use only oil recommended by tractor factory. Don't experiment. Clean carburetor twice weekly. Don't forget the dust clarifier. Keep clutches tight enough—but not tight. Don't race motor. Report all wearing parts in advance. Keep all nuts tight. Use enough oil but avoid wastage. Oil costs money and saves breakage. THINK! YOUR EFFICIENCY DEPENDS UPON YOUR HEAD DIRECTING PROPER CARE OF THIS TRACTOR AND TRAILERS. Have you read the instructions book?

2. For Cost Department: Extend al fuel costs from invoices. Insert Cat. name and No. for parts required. List oil and fuel needed on the purchase file daily. Extend items under "LOAD" to show exact weight of each load. Check delivery slip against load delivered. Add 1 per cent or ..... of gross cost of unit under 'Depreciation" per month. Add 1/10 per cent or ..... of gross cost of unit under "Maintenance" per day. Check items on expense account of operator against this record.

3. Monthly Cost: Compare material invoices and extra labor overhauling to maintenance total. File all cards received and write for those missing.

Cost of parts, 2—Lay-off time, 3—Labor costs installing.

"The writer suggests that the various manufacturers who have studied and maintained field engineers who make a business of inspecting and recommending the installation of worn parts on tractors before actual breakage takes place have a better idea of the actual cost of such items than an individual corporation who may have isolated cases where costs have mounted to the sky in parts' cost. In this connection the principal concern of the operator or purchaser should be—to buy good materials in a machine designed to be repaired with least expense and loss of time.

Cost of Maintenance

"A fair basis for placing the costs of materials (parts) to maintain a tractor operating at less average speed than 4 miles per hour is one-tenth per cent of original cost per day of operation, basing this percentage on the average of 500 tractors that have been used for such work under similar rough conditions.

"The third element of lay-off time is the one item on which the Texas oil producer has learned by hard experience that he must guard himself against. Unless he can get service when and where he wants it he is 'blowed up.' This item is a selection of the lesser of the evils contained in the various manufactured goods and is again dependent upon the class of materials used in the original construction of the power unit he purchases.

"These expenses based on a 10-hour working day in the Texas oil fields at existing costs are approximately shown for a 50 horsepower tractor and three steel wheel wagons.

Wages—driver	$6-8.00
Wages—Swamper	4-5.50
Gas, 30 gals., 22½c	6.75
Lub. oil, 2 gals.	1.50
Other oil, 8 gals.	1.25
Grease for wagons	.50
Average total	$22.00

"These expenses are a fixed monthly expense charged against the tractor and wagon unit.

Cost Per Ton Mile

When the daily record sheets for a tractor hauling unit are received by the cost department it is very easy to determine the exact tons hauled and the miles traveled with this load as shown by the attached card which is turned in each day by the operator to the warehouse foreman or lease superintendent, as the case may be.

"The operator has no concern with the items of overhead maintenance, or high price of fuel and oil used. These items are extended by the main office or by the bookkeeper. Operators cannot be too insistent upon their drivers showing why they are 'hung up' on the road, and also to show as nearly as possible the exact weights of material hauled and quantity of fuel and oil used. With this data correct it is very easily possible to show the exact cost of hauling on the ton-mile basis in any particular district.

"With the attached card it would appear to the casual observer in a distant mahogany office that costs vary a great deal from one period to another. This is unquestionably true because the cost of hauling is based on the condition of the road every day, and a rainstorm can increase the cost 400 per cent over night. Unless the road conditions are shown daily the cost sheet loses its value. Against these high costs in bad weather are to be credited the fact that the well is working or producing—and not shut down.

"By simple addition the daily cost cards may be totaled to monthly and annual reports; and with the cost of materials and wages paid during the regular overhauling periods for each unit the exact cost of each tractor and hauling unit determined:"

Warren County, Ky., Reports Big Well

By Special Correspondent

LEXINGTON, Ky., Nov. 10.—Oil runs from the Eastern Kentucky field, as reported by the Cumberland Pipe Line Company for the week show a slight decrease over the previous week, totalling 82,043.74 barrels, as against 83,993.13 barrels. This is a falling off of 1,949.39 barrels, whch is accounted for by the high waters crippling pumping plants, following unprecedented rains. The Big Sinking pool still maintains its lead over other districts with an aggregate of 34,298.94 barrels to its credit, while Hell Creek, the newest of the Lee county pools, with a total of 4,308.94 barrels, is increasing its output. The Great Northern Refining Company reports its runs from the Eastern Kentucky field during October as 116,250 barrels.

The Russell Oil Company reports No. 43, Hall and Burke tract, Lee county, as rated at 15 barrels; the Torrent Oil & Production Company's No. 8, Profit lease, Estill county, 15 barrels; Irvine Field Development Company, No. 8, D. N. Witt lease, Estill county, 10 barrels; Midland Oil Company, No. 23, Little Belle Watson farm, Powell county 10 barrels; Sunnyside Oil Company, No. 8, A. R. Humble tract, Wayne county, 1 barrel.

The well on the Davenport farm, four miles from Bowling Green, Warren county, has developed into a big producer, according to telegrams here. Oil was struck at 960 feet. A day later oil gushed from the well for a distance of 200 feet into the air. It has since been flowing. This is in entirely new territory, and is within the territory designated by geologists as that section in Warren county which will be most productive of oil.

On the Bob Ground lease, Warren county, the Butler Oil Company has completed No. 1, rated at 25 barrels. This well came in at 407 feet. The Big Jackson Oil Company reports the completion of a 100-barrel well on the Davenport lease, Warren county. The well filled to within 17 feet of the top after being drilled to 950 feet. While drilling a few feet deeper, fire from the boiler ignited the rigging, burning it to the ground, injuring a driller.

Hurley and others, No. 1, Martin lease, Warren county, 25 barrels; Combination Oil Company, No. 3, Prendergrass lease Lee county 50 barrels; Gem Oil Company, No. 4, Gabbard lease, Lee county, 10 barrels; Ohio Oil Company, No. 61, Flahaven tract, Lee county, 25 barrels; Snowden Brothers, No. 2, Susie Oliver lease, Allen county, 25 barrels; Piedmont Oil Company, No. 3, Stovall farm, Allen county, 25 barrels; Omar Oil Company, No. 14, Williams lease, Allen county, 30 barrels; Monitor Oil Company No. 1, Edwards tract, Allen county, 40 barrels.

60 Barrell Well In West Virginia Field

By Special Correspondent

PITTSBURGH, Nov. 9.—Among the good producers of the week in West Virginia is the Eastern Petroleum Company's 60-barrel well on the Wilson farm on Meser's fork, Mannington district, Marion county. The Richwood Oil Company has a 10-barrel producer in its No. 9 well on the Hills farm in Grant district, Wetzel county. The Capital Oil & Gas Company also has a 10-barrel well in this field; it is located on the Lilcoyne farm. The West Virginia Central Gas Company has a 25-barrel producer on the Van Horn farm in Union district, Harrison county. The Hope Natural Gas Company has a 5-barrel pumper on the Stephens farm in Clay district, Monongalia county.

The Hope Natural Gas Company's deep test on the Power lease on the Volcano tract in Walker district, Wood county, is showing close to 40 barrels a day. The pay sand was reached at a depth of 2,285 feet. According to Prof. I. C. White, the oil is coming from the Speechley sand, and if true this is the first well to get oil in paying quantities in that formation in that locality.

The Hope Company has a contract with the Power Oil Company on this tract whereby the former company is to drill a number of deep tests and in the event oil is found below a specified depth it becomes the owner of the oil. If oil is found above the agreed depth the output goes to the Power Company. Under these conditions much interest is attached to the operations on this tract.

The Gordon sand development in Union district, Harrison county, W. Va., continues to furnish very fair producers. The latest completion, the Hope Natural Gas Company's No. 3, on the W. B. Lowther farm, is estimated at 30 to 40 barrels a day.

On the waters of Doctors creek, Big Sandy district, Kanawha county, the Ohio Fuel Oil Company has completed and shot its No. 8, on the W. M. Nichols farm. The well produced 32 barrels the first 24 hours. The same company shot No. 3, on the same farm, increasing its production from 12 to 18 barrels the ensuing 24 hours.

In the Union district, Wood county, the South Penn Oil Company has completed No. 17 on the L. Ogdin farm, and showing for a 10-barrel pumper in the Berea grit. In the same district, Parsons & Sweeney Brothers has a five-barrel pumper in the same formation at No. 12, on the Rebecca Walker farm.

Southwest of the Fonner pool, Morris township, Washington county, the Manufacturers' Light & Heat Company has drilled its test on the C. Wright farm 33 feet into the 50-foot sand and the hole stands full of oil. When completed it should make a good producer. Southeast of this development Myers, Long & Company have completed their test on the Garlen Dillie farm. It is a duster. The well on the Huffman farm, one of the best producers in the pool, has declined to 80 barrels a day.

In the Weir sand extension, Big Sandy district, Kanawah county, the Guffey-Gillespie Oil Company has shot No. 7, on the James F. Brown farm, increasing its production from 35 to 80 barrels the first 24 hours. In the same district the South Penn Oil Company shot No. 1 on the A. M. Bird farm, getting an increase of 50 barrels the first 24 hours.

Record Of Wells Drilled In Northwest Extension Pool At Burkburnett

Initial production estimates on all the wells completed in the northwest extension to the Burkburnett field since the time of the Burk-Waggoner Oil Company "discovery" on the R. M. Waggoner tract, the latter part of April, last, down to November 1, are given in the accompanying table, which also gives pipeline runs from the individual wells as of current date. Sand records on the wells in the northwest extension are also given, making the accompanying report as complete as it is possible to be made. It will be understood that because of the crude oil congestion existing as a result of the intensive drilling campaign practiced in the so-called northwest exension, and because of the breakdown of federal controlled railroad facilities which have not permitted a maximum of tank car shipments, together with the fact that the Magnolia Petroleum Company and The Texas Company were the only two interstate carriers to have pipelines into the Burkburnett field as late as November 1, the figures on pipeline runs represent only the production being handled and not the present producing capacity of wells, which are shut in. The table follows:

Company	Tract-Well	Sand Record	Date Comp.	Initial Est. Prod.	Present Ppl. Runs	Pipeline
Burk-Waggoner Oil Co.	R. M. Waggoner 1	1672–1702	4–30–19	3500	119	Magnolia
Van & Cox.	P. C. Chenault 1	T. Aban.	5–12–19	....	....	.....
Thrift No. 2 Oil & Gas Company.	Brannon 1	1697–1715	5–10–19	1400	....	.....
Southland Oil Company.	Gist 1	Dry 1860	5–12–19	....	....	.....
	Gist 2	Dry 1720	5–31–19	....	....	.....
Pan American Oil Company	Chenault 1	Dry 1700	5–12–19	....	....	.....
Texas Ranger Oil & Refining Company.	Brannon 4	1702–1726	6–12–19	1500	130	Constantin
Texas Company	S. L. Fowler 2	1752–1766	6– 9–19	600	.156	Texas
Summit Petroleum Company.	Renner 1	1760–1775	6–23–19	100	114	Magnolia-Texas
Sure Pop Oil Company.	Vogel 1	1769–1781	6– 9–19	300	.....	.....
Reid et al.	Chenault 1	Dry 1670	6–12–19	....	....	.....
Hammond Ray Oil Company.	Chenault 1	T.A. 1806	6– 7–19	....	.....	
Golden Cycle Oil Company.	Renner 2	1766–1803	6–30–19	800	23	Texas
Golconda Oil Company.	Brannon 1	1706–1726	6–23–19	1500	137	Magnolia
Gray Gander Oil Company.	Elsea 1	1679–1696	6–23–19	1250	318	Empire-E. Jones
Alamo Oil Company	Chenault 1	Dry 2018	6–12–19	....	....	.....
Patterson, McMann & Goodwin.	Brannon 1	1710–1726	6–16–19	1500	....	.....
Works et al	Waggoner 1	1671–1691	6– 9–19	800	....	.....
G. C. Wood et al	Waggoner 1	1595–1625	6– 9–19	1200	....	.....
United Producers Oil Company (John O'Donohe et al)	Waggoner 1	1636–1659	6–23–19	1500	147	Texas
	Waggoner 2	1633–1655	6–30–19	1000	147	Texas
	Waggoner 3	1638–1656	6–23–19	1600	147	Texas
	Waggoner 4	1628–1658	6–30–19	1000	147	Texas
Texas Chief Oil Company.	C. T. Taylor 1	1649–1664	6– 9–19	3940	171	Constantin-Elliot Jones
American Refining Company.	R. M. Waggoner 1	1639–1660	6– 9–19	1500	286	Amn. Rfg.
Bob Brewer et al.	R. M. Waggoner 1	1665–1693	6– 9–19	1000	....	.....
Franklin Staley Oil Company.	R. M. Waggoner 2	1671–1691	6– 9–19	1200	....	.....
Gulf Production Company.	R. M. Waggoner A-3.	T.D. 1608	6–29–19	765	201	Gulf
Hill & Roberts.	R. M. Waggoner 1	1635–1655	6– 9–19	1200	110	Magnolia
Joe Long & Thomas.	Vogel 1	1810–1835	6–23–19	1500	156	Magnolia
King Oil Company.	Waggoner 1	1664–1691	6– 9–19	1000	162	.....
Langford, Staley & Chenault.	Waggoner 1	1655–1682	6– 9–19	1000	42	Texas
P. J. Lea & Company.	Waggoner 1	1664–1691	6– 9–19	120	219	Magnolia
Lincoln Brewer et al.	Waggoner 1	1605–1636	6–23–19	1200	....	.....
Lewis & Fitzgerald.	Waggoner 1	1597–1632	6–23–19	1500	116	Magnolia
L. R. Munger & G. C. Wood.	Waggoner 1	1646–1661	6– 9–19	1500	....	.....
L. R. Munger & G. C. Wood.	Waggoner 2	1633–1654	6–23–19	1300	....	.....
M. D. Rowe et al	Wagoner 1	1661–1692	6– 9–19	1000	231	Texas
Ryan Petroleum Company.	Waggoner 3	1653–1681	6–23–19	2000	302	Texas-Ark. City & Magnolia
S. W. & S. Oil Company.	Schmisseur 1	1676–1717	6– 9–19	1000	335	Magnolia-Texas
W. G. Skelly.	Waggoner 1	1669–1694	6–30–19	1000	423	Jones-Sinclair
Aviators Oil Company.	Chenault 1	T.A. 2280	7–21–19	....	....	....
Armstrong et al.	Renner 1	Dry 1735	7–28–19	....	....	.....
dams, Brown & McAlister.	Fowler 1	Dry 1950	7–10–19	....	....	.....
Big Square Oil Company.	Chenault 1	T.A. 1641	7–10–19	....	....	.....
Burk Eastland Oil Company.	Renner 1	Dry 1775	7–28–19	....	....	.....
Burk Jack Oil Company.	Renner 1	Dry 1810	7–28–19	....	....	.....
Vaughn Oil Company.	Vaughn 1	T.A. 1740	7– 7–19	....	....	.....
Texas Company.	S. L. Fowler 4	1735–1763	7–13–19	550	150	Texas
	S. L. Fowler 9	1723–1753	7–14–19	600	158	Texas
Union Central Oil Company.	Chenault 1	T.A. 1700	7–10–19	....	....	.....
Golden Rod Oil Company.	Renner 1	1783–1795	7–21–19	1250	....	.....
Howard Weber.	Brannon 1	1703–1723	7–21–19	1500	217	Empire-N. Amn.
Iowa Burk Oil Company.	Renner 1	1769–1779	7–21–19	1000	....	.....
Langford, Staley & Chenault.	Brannon 1	1708–1734	7–31–19	1000	120	Texas
Townsend Oil Company.	Renner 1	1746–1767	7–21–19	1000	153	Texas-Magnolia
Willow Bloom Oil Company.	Elsea 1	1687–1697	7–21–19	1000	283	Western
Weimar Oil Company.	Renner 1	1801–1826	7–21–19	1000	141	Magnolia
Midfield Oil Company.	J. Renner 1	Dry 1840	7–28–19	....	....	.....
Tulsa Production Company.	Renner 1	1763–1799	7–28–19	600	....	.....
Burk Hawk Oil Company.	Vogel 1	1836–1847	7–14–19	1000	....	.....
Brown & Adams.	Elsea 1	1698–1714	7–28–19	1500	....	.....
Burk Fort Oil Company.	Evans 1	Junked 1675	7–28–19	....	....	.....
W. D. Cline et al.	Waggoner 2	1666–1701	7–14–19	1500	....	.....
Cannon & Hobbs.	C. T. Taylor 1	1653–1671	7–14–19	2000	235	Jones-Texas
Eltra Oil Company.	Haney 1	T.A. 1736	7–28–19	....	....	.....
Elkins Oil Company & G. C. Wood.	Lillis Morgan 1	1581–1596	7–10–19	1200	....	.....
Gulf Production Company.	Waggoner A-1	T.D. 1622	7– 5–19	800	201	Gulf
	Waggoner A-2	T.D. 1613	7– 5–19	1320	201	Gulf
	L. Morgan 4	T.D. 1603	7–29–19	230	105	Gulf
	E. E. Elsea A-2	T.D. 1701	7–28–19	200	110	Gulf
Hammond & Art.	Waggoner 1	1585–1605	7–28–19	600	132	T & B-Magnolia
	Waggoner 2	1594–1620	7–28–19	1000	132	T & B -Magnolia
Jazbe Oil Company.	Schmisseur 1	1782–1810	7–21–19	800	103	Texas
Kansas City Petroleum Company.	Elsea 1	1682–1703	7– 7–19	1500	214	Texas
Lincoln Brewer et al.	Waggoner 2	1609–1632	7–28–19	1200	....	.....
Munger-Lee Oil Company.	Waggoner 1	1583–1608	7–28–19	1800	....	.....
Stella Minchew Oil Company.	Brannon 1	1676–1704	7–14–19	2000	93	Magnolia
M. & P. Burk Oil Company.	Evans 1	1605–1635	7–10–19	1500	97	Texas
New Pool Oil Company.	Evans 1 (1s. 1)	1573–1585	7– 7–19	1000	....	.....
Noble & Livingston.	Waggoner 1	1588–1633	7– 7–19	1500	191	Waggoner Rfg. & Magnolia
Langford, Staley & Chenault.	Schmisseur 1	1666–1681	7–21–19	1000	89	Texas
Olsan Davis Oil Company.	Taylor 1 (blk 98)	Dry 1580	7–28–19	....	....	.....
Ranger-Burkburnett Oil Company.	Waggoner 1	1587–1611	7–28–19	1800	116	Southern
J. I. Staley & Company.	Morgan 1	1587–1607	7–14–19	1000	101	Magnolia
Sanders & Taylor.	Brannon 1	1575–1605	7–21–19	1500	111	Magnolia-Texas
Thrift No. 1 Oil & Gas Company.	Brannon 4	1708–1730	7–28–19	1000	....	.....

RECORD OF WELLS DRILLED IN NORTHWEST EXTENSION AT BURKBURNETT—Cont.

Company	Tract-Well	Sand Record	Date Comp.	Initial Est. Prod.	Present Ppl. Runs	Pipeline
Texhoma Oil & Refining Company.						
	Evans 1	1575–1605	7–21–19	1000	127	Texhoma-Texas
	Waggoner 2	1584–1621	7–21–19	1200	128	Texhoma-Texas
Western Oil Corporation (Darby, Snedden & Campbell).						
	Elsea 1	1669–1684	7–21–19	1200	179	Western
	Taylor 2	1664–1688	7–21–19	3366	203	Western
Mucklestone Oil Company.						
	Vogel 1	T.A. 1910	8–11–19	....	....	.....
National Oil & Gas Company.						
	Vogel 1	1729–1754	8–18–19	2500	....	.....
Willis Ramming.						
	Renner 1	1811–1818	8– 4–19	300	....	.....
J. I. Staley & Company.						
	Fowler 1	Dry 1927	8–18–19	....	87	Texas
	Taylor 1 (blk 96)	1720–1738	8–11–19	1500	87	Texas
	Renner 1	T.A. 1710	8–11–19	....	....	.....
Texas Company.						
	S. L. Fowler 6	1710–1737	8– 4–19	1250	158	Texas
	S. L. Fowler 7	1722–1740	8–18–19	700	158	Texas
	S. L. Fowler 8	1722–1748	8– 4–19	800	158	Texas
	S. L. Fowler 10	1718–1749	8–18–19	750	158	Texas
	S. L. Fowler 12	1705–1730	8–18–19	1500	158	Texas
Burkley Oil Company.						
	Waggoner 1	1767–1777	8– 4–19	125	....	.....
Bass, Dillard & Art.						
	Evans 1	1560–1592	8–4–19	2500	....	.....
Bass, Dillard & Wood.						
	Evans 1	1585–1608	8–11–19	800	....	.....
	Evans 2	1597–1607	8– 4–19	1000	....	.....
Burk Imperial Oil Company.						
	Waggoner 1	1585–1608	8–11–19	1000	323	Magnolia
Little Burkburnett Oil Company.						
	Morgan 1	Aban. 1861	8–14–19	....	....	.....
W. D. Cline et al.						
	Waggoner 1	1670–1692	8–25–19	1500	....	.....
Clark et al.						
	Taylor 1	1589–1621	8–18–19	2000	....	.....
Chenault & Rowe.						
	Taylor 1	1616–1646	8–18–19	2000	217	Magnolia.
	Taylor 2	1624–1642	8–18–19	2000	....	.....
Duke of Dublin Oil Company.						
	Vogel 1	1786–1820	8– 4–19	300	201	Southern
Elkins Oil Company & G. C Wood.						
	Morgan 2	1584–1596	8– 4–19	1500	....	.....
Fern Oil Company.						
	Waggoner 1	Aban. 1701	8–25–19	....	....	.....
Gulf Production Company.						
	Elsea A-1	T.D. 1698	8–17–19	1500	118	Gulf
	Elsea B-1	T.D. 1686	8–11–19	210	....	Gulf
	L. Morgan 1	T.D. 1601	8–30–19	90	100	Gulf
	Waggoner 2	T.D. 1627	8–27–19	1000	201	Gulf
	Waggoner 3	T.D. 1622	8–10–19	1500	201	Gulf
	Waggoner 4	T.D. 1627	8–26–19	500	202	Gulf
Galloway Oil & Refining Company.						
	Taylor 1	1622–1643	8– 4–19	800	214	Western-Texas
Godley Weber Oil Company.						
	Brannon B-8	1704–1734	8– 4–19	1800	1119	Empire
Hill & Roberts.						
	Taylor 1	1637–1653	8–25–19	1200	261	Magnolia
Hartsford Oil & Gas Company.						
	Taylor 1	1647–1665	8–11–19	2000	365	Texas
Harrison & Dale.						
	Taylor 1	1658–1685	8– 4–19	2000	47	T-B & Jones
Hill & Roberts.						
	Evans 1	1533–1539	8– 4–19	1500	451	Magnolia
	Evans 3	1569–1591	8– 4–19	1500	451	Magnolia
Humble Oil & Refining Company.						
	Waggoner A-2	1595–1621	8–18–19	300	133	Humble
	Waggoner A-3	1595–1618	8–18–19	800	133	Humble
	Waggoner A-1	1559–1579	8–18–19	400	133	Humbe
	Waggoner A-4	1595–1618	8– 4–19	1000	134	Humble
	Brannon B-4	1693–1709	8–18–19	300	80	Humble
	Brannon 3	1680–1708	8–11–19	700	80	Humble
Healdton Oil Company.						
	Morgan 1	1564–1680	8–18–19	500	87	Magnolia
Imperial Petroleum Company.						
	Evans 1	1576–1600	8– 4–19	800	45	Texas
	Evans 2	1557–1564 1576–1598	8– 4–19	800	46	Texas
	Taylor 1	1659–1679	8–18–19	2000	46	Texas-Magnolia
Jewell "V" Oil Company.						
	Taylor 1	Dry 2000	8– 4–19	....	....	.....
P. J. Lea & Company.						
	Waggoner 1	1595–1607	8– 4–19	800	219	Magnolia
Langford, Staley & Chenault.						
	Waggoner A-1	1579–1601	8–18–19	1800	....	.....
Livingston Oil Corporation.						
	Waggoner 1	1597–1618	8–18–19	700	627	Texas
Main Pool Oil Company.						
	Morgan 1	1577–1605	8– 4–19	1000	214	Texas
Dorothy Munn.						
	Elsea 1	1700–1723	8– 4–19	1200	....	.....
Maxson Wise Oil Company.						
	Morgan 1	1594–1614	8– 4–19	1800	....	.....
Marjay Oil Company.						
	Waggoner 1 (blk 85)	1632–1654	8–11–19	1200	127	Texas-Magnolia
	Waggoner 7 (blk 87)	1607–1628	8–11–19	1000	....	.....
Kansas City Gulf Oil Company.						
	Taylor 1	1652–1673	8–25–19	1500	92	Texas
North Texas Oil & Gas Company.						
	Vogel 1	1792–1812	8–25–19	1000	921	E. Jones–Crude O. M.
Noble & Livingston.						
	Waggoner 2	1574–1600	8– 4–19	800	191	Waggoner Rfg-Mag.
	Waggoner 3	1576–1604	8– 1–19	1000	191	Waggoner Rfg-Mag.
	Waggoner 5	1587–1614	8–18–19	800	....	.....
Oklahoma Petroleum & Gasoline Company.						
	Taylor 5 acres 1	1663–1681	8–18–19	2000	373	O. P. & G.-Johnson
	Taylor 2	1661–1675	8–25–19	1800	260	O. P. & G.-Johnson
Olsan Davis Oil Company.						
	Taylor 1 (blk. 97)	1641–1658	8–18–19	1000	81	Texas
Prairie Hill Oil Company.						
	Morgan 1	Dry 1905	8– 4–19	....	....	.....
P. J. & J. S. Oil Company.						
	Roberts 1	Aban. 2000	8– 4–19	....	....	.....
Pickens, Robinson & Hunt.						
	Bogel 1	1731–1755	8–25–19	1500	....	.....
P. & P. Oil Company.						
	Waggoner 1	1586–1601	8–18–19	1500	107	Magnolia
	Waggoner 2	1600–1621	8–18–19	1500	108	Magnolia
Pannhandle Refining Company.						
	Morgan 2	1556–1574	8–18–19	800	.....	.....
Park, Olsan & Whaley.						
	Elsea 1	1655–1673	8–18–19	1500	....	.....
Southwestern Petroleum Company.						
	Elsea 1	1717–1742	8–18–19	1000	202	No. Amn.
	Elsea 2	1700–1725	8–18–19	900	202	No. Amn.
Sureshot Oil Company.						
	Elsea 1	1660–1677	8–18–19	1000	210	Texas
J. I. Staley & Company.						
	Taylor 4 (blk 98)	1604–1636	8–25–19	1800	....	.....
Slayton Wichita Oil Company.						
	Morgan 1	1588–1691	8–25–19	1500	....	.....
Seventy Two Oil Company.						
	Waggoner 1	1651–1683	8–25–19	2000	93	Texas
W. F. Ramming et al.						
	R. S. Allen 1	T.A. 1920	8– 4–19	....	....	.....
W. M. Priddy.						
	Bashara 1	1561–1588	8–18–19	1500	91	Magnolia
	Bashara 2	1601–1619	8–18–19	1500	91	Magnolia
Norton & Cline.						
	Waggoner 1	1681–1715	8–25–19	1800	72	Magnolia-Texas
	Waggoner 3	1659–1682	8–25–19	1800	72	Magnolia-Texas
	Waggoner 4	1642–1682	8–25–19	2000	72	Magnolia-Texas
	Waggoner 5	1659–1699	8–25–19	1500	72	Magnolia-Texas
	Waggoner 6	1643–1683	8–25–19	1800	73	Magnolia-Texas
Texas Company.						
	Morgan 1	1596–1649	8–18–19	1200	271	Texas
	Morgan 2	1600–1627	8–18–19	1000	271	Texas
Texhoma Oil & Refining Company.						
	Waggoner 1	1595–1601	8– 4–19	800	127	Texhoma-Texas
	Evans 2	1546–1560	8– 4–19	750	127	Texhoma-Texas
Toumanian Oil Company.						
	Taylor 1	1637–1655	8–18–19	1500	190	Empire
United Southern Oil Company.						
	Schnakenberg 1	Aban. 1900	8–25–19	....	....	.....
Velma Oil Company.						
	Sims 1	T.A. 2002	8–11–19	....	....	.....
G. C. Wood et al.						
	Evans 1	1551–1582	8–18–19	400	....	.....
	Waggoner 2	1592–1612	8–11–19	800	....	.....
Waseco Oil Association.						
	Taylor 1	1588–1609	8–18–19	1500	....	.....
Western Oil Corporation.						
	Taylor 4	1600–1674	8–18–19	1500	203	Western
	Waggoner 1 (blk 86)	1582–1604	8– 4–19	500	83	Western
	Waggoner 2 (blk 86)	1592–1612	8–25–19	900	....	.....
Western Oil Corporation & Pat Casey.						
	Waggoner 1 (blk 86)	1598–1616	8– 1–19	600	....	.....
Waurika No. 2 Oil Company.						
	Taylor 1	1619–1633	8– 4–19	2000	....	.....
Wichita American Production Company.						
	Vogel 1	1793–1814	8–25–19	1500	....	.....
Warrior Oil Company.						
	Morgan 1	1568–1685	8–25–19	750	403	Texas-Magnolia
Block 74 Oil Company.						
	Vogel 1	1742–1768	8–25–19	1000	128	Texas
Bradley Oil Company.						
	Vogel 1	1738–1770	8–25–19	2000	703	Texas-Crude O. M.
Barkerley & Meadows.						
	Vogel 1	1762–1779	8–25–19	1000	....	.....
	Vogel 2	1760–1777	8–25–19	1000	253	Magnolia-Texas
	Vogel 4	1776–1812	8–25–19	1200	....	.....
Colorado Oil & Gas Company.						
	Vaughn 1	Dry 2100	8–25–19	....	....	.....
Marjay Oil Company.						
	Renner 2	1761–1793	8–11–19	1000	152	Magnolia Texas
Marigold Oil & Refining Company.						
	Vogel 5	1792–1812	8–25–19	1000	....	.....
Kenbrook Oil Company.						
	Slama 1	T.A. 2180	8–11–19	....	....	.....
International Texas Oil Company.						
	Renner 1	1806–1810	8– 4–19	40	32	Magnolia
Golden Cycle Oil Company.						
	Renner 1	1746–1761	8– 4–19	100	23	Texas
Howard Weber Oil Company.						
	Brannon 3	1700–1730	8–18–19	1800	903	Enp-Mag-Cons.
	Elsea C-1	1705–1724	8–25–19	1000	246	Emp-N. Amn.
Golconda Weber Oil Company.						
	Brannon A-2	1700–1730	8– 4–19	2000	984	Emp-Mag-Sou.
Ajax Oil Company.						
	Elsea 2	1685–1717	9–1–19	1500	231	Texas
American Refining Company.						
	Waggoner 2	1598–1616	9– 8–19	1800	....	.....
Bass, Dillard & Wood.						
	Evans 3	1609–1618	9–11–19	1000	....	.....
Bonita Oil Company.						
	Taylor 1	1645–1660	9–1–19	1500	....	.....
Border State Oil Company.						
	Morgan 1	Dry 1600	9–22–19	....	....	.....
Burk Consolidated Oil Company.						
	Evans 1	1553–1575	9–22–19	750	....	.....
Champion & McMann.						
	Taylor 1	1605–1626	9–22–19	1500	....	.....
Duke of Dublin Oil Company.						
	Vogel 2	1786–1805	9–29–19	800	202	Southern
Elkins Oil Company & G. C. Wood. (Wood Furn. Oil Corporation).						
	Morgan 3	1580–1595	9– 1–19	1500	97	Mag-Texas-Johnson
	Morgan 4	1578–1603	9– 8–19	1500	97	Mag-Texas-Johnson
	Morgan 5	1579–1601	9– 1–19	1250	97	Mag-Texas-Johnson

RECORD OF WELLS DRILLED IN NORTHWEST EXTENSION AT BURKBURNETT—Cont.

Company	Tract-Well	Sand Record	Date Comp.	Initial Est. Prod.	Present Ppl. Runs	Pipeline
	Morgan 6	1572–1599	9–29–19	1500	98	Mag–Texas-Johnson
Eastland Oil & Refining Company.						
	Evans 1	1552–1564	9–15–19	1000	202	Texas
Golden Rule Oil Company.						
	Evans 1	Aban. 1817	9–29–19	....	....	.....
Gooch & Davis.						
	Evans 1	1577–1596	9–15–19	300	117	Texas
	Evans 2	1580–1591	9–15–19	800	117	.....
Gulf Production Company.						
	Morgan et al 1	1577–1626	9–26–19	1300	100	Gulf
	Morgan et al 2	1568–1596	9– 1–19	45	....	.....
	Morgan et al 3	1577–1630	9– 4–19	1500	100	Gulf
	Morgan et al 8	1580–1587	9–10–19	1000	100	Gulf
	E. E. Elsea B-2	1664–1700	9–13–19	60	102	Gulf
	C. T. Taylor 2	1609–1635	9–27–19	1000	102	Gulf
	F. Schmisseur 1	1676–1702	9– 4–19	167	120	Gulf
	F. Schmisseur 2	1662–1689	9–27–19	125	121	Gulf
Summit Petroleum Company.						
	Renner 2	1770–1795	9– 1–19	300	....	.....
Sinclair Consolidated Oil & Gas Company.						
	Brannen 2	1726–1745	9– 1–19	15	....	.....
Texas Ranger Oil & Refining Company.						
	Brennen 1	1730–1752	9– 1–19	1500	130	Texas
	Brannon 3	1715–1741	9–15–19	600	130	Constantine
	Brannon 5	1699–1730	9–15–19	500	130	Constantine
	Brannon 7	1724–1750	9–15–19	400	131	Constantine
	Brannon 8	1728–1754	9–15–19	700	131	Constantine
Tex.-Penn. Oil Company.						
	Brannen 1	1705–1720	9–20–19	250	....	.....
Texas Company.						
	Fowler 11	1698–1729	9–15–19	500	158	Texas.
	Fowler 13	1717–1740	9–15–19	350	159	Texas
Humble Oil & Refining Company.						
	Brannon 1	1690–1701	9–27–19	500	80	Humble
	Brannon 2	1680–1705	9–15–19	500	80	Humble
	Evans 1	1582–1604	9–28–18	800	99	Humble
	Waggoner 1	1583–1616	9–15–19	1000	54	Humble
	Waggoner 2	1572–1592	9– 1–19	500	55	Humble
Healeton Oil & Gas Company.						
	Evans 1	1619–1637	9– 1–19	600	87	Magnolia
	Evans 2	1601–1613	9– 1–19	400	87	Magnolia
	Evans 4	1600–1614	9– 1–19	400	87	Magnolia
	Evans 5	1585–1612	9–15–19	800	88	Magnolia
Hill & Roberts.						
	Waggoner 2	1629–1650	9–15–19	1500	110	Magnolia
Hardly Able Oil Company (Lee Wilson et al) .						
	Taylor 1	1576–1598	9– 1–19	1000	....	.....
International Texas Oil Company.						
	Evans 1	1574–1599	9–15–19	500	31	Magnolia
	Evans 2	1593–1611	9–15–19	400	31	Magnolia
Imperial Petroleum Company.						
	Taylor 2	1655–1670	9– 1–19	1800	47	Magnolia-Texas
Kimmel & Dillard.						
	Taylor (9 blk 96)	1650–1681	9–22–19	1500	102	Texas
Kentex Oil Company.						
	Morgan 1	1560–1579	9–22–19	400	....	.....
Livingston Oil Corporation.						
	Waggoner 2	1592–1614	9–22–19	1250	....	.....
Lesh Oil Company.						
	Waggoner 1	1596–1611	9–22–19	1800	318	H. B. & P.
Lincoln Oil Company.						
	Evans 1	1557–1565	9–22–19	1500	....	.....
P. J. Lea & Company.						
	Morgan 1	Aban. 1957	9– 1–19	....	....	.....
	Waggoner 2 (blk 86)	1583–1605	9–16–19	800	....	.....
Lesh Oil Company.						
	Waggoner 3	1590–1620	9–22–19	1500	318	H. B. & P.
Langford, Staley & Chenault.						
	Waggoner 2	1667–1697	9– 8–19	1000	....	.....
	Waggoner 3	1669–1697	9–12–19	800	....	.....
	Vogel 1	1719–1749	9– 1–19	1000	....	.....
	Schmisseur 2	1674–1695	9– 1–19	1000	89	Texas
	Schmisseur 3	1700–1726	9– 1–19	1000	89	Texas
	Schmisseur 4	1665–1688	9– 8–19	800	90	Texas
Marjay Oil Company.						
	Waggoner 1 (blk 85)	1604–1617	9– 1–19	1000	127	Texas-Magnolia
	Waggoner 2 (blk 87)	1606–1629	9– 1–19	1200	111	Texas-Magnolia
	Waggoner 4 (blk 87)	1618–1638	9– 1–19	1500	112	Texas-Magnolia
M. & P. Burk Oil Company.						
	Evans 2	1600–1618	9–15–19	1000	97	Texas
Midco Petroleum Company.						
	Taylor A-1	1598–1616	9–15–19	1500	130	Johnson
Metex Oil Company.						
	Evans 1	1629–1637	9–15–19	150	....	.....
New Pool No. 2 Oil Company.						
	Morgan 1	1559–1585	9– 1–19	1000	272	Sinclair
Norton & Cline.						
	Waggoner 2	1642–1658	9–29–19	1250	72	Magnolia-Texas
Noble & Livingston.						
	Waggoner 4	1570–1582	9–22–19	300	191	Waggoner-Mag.
	Waggoner 6	1613–1636	9–22–19	500	196	Waggoner-Mag.
Olean Davis Oil Company.						
	Morgan B-1	1606–1616	9–22–19	500	....	.....
Oklahoma Petroleum & Gasoline Company.						
	Taylor 1 (Ls. 1)	1661–1676	9–15–19	550	273	O. P. & S.-Johnson
W. M. Priddy.						
	Morgan 1	1578–1597	9–15–19	1200	91	Magnolia
	Morgan 2	1576–1594	9–15–19	1000	92	Magnolia
	Morgan 3	1573–1593	9–15–19	1250	....	.....
	Morgan 4	1580–1601	9–15–19	1500	....	.....
Panhandle Refining Company.						
	L. Morgan 4	1591–1615	9–22–19	1000	....	.....
Ranger Burk Oil Company.						
	Evans 1	1578–1597	9–15–19	400	116	Southern
Ranger & Burkburnett Oil Company.						
	Waggoner 2	1584–1605	9–15–19	1000	....	.....
Sammies Oil Corporation.						
	Morgan 1	1571–1593	9–15–19	800	214	N. Amn.
	Morgan 2	1579–1598	9–15–19	300	214	N. Amn.
J. I. Staley & Company.						
	Morgan 2	1588–1608	9 –1–19	1500	100	Magnolia
	Morgan 3	1591–1611	9– 1–19	1250	100	Magnolia
	Morgan 4	1590–1616	9– 1–19	1500	100	Magnolia
Texas Company.						
	Morgan 4	1578–1621	9– 1–19	2500	271	Texas
	Morgan 7	1581–1630	9– 8–19	700	271	Texas
Townsend & Weimer.						
	Evans 1	1641–1673	9– 8–19	700	....	.....
Tomax Oil Company.						
	Taylor 1	1586–1606	9– 1–19	1250	190	Empire
Tarver Drilling Company & G. C. Wood.						
	Evans 1	1594–1626	9– 1–19	1000	....	.....
Toumanaize Oil Company.						
	Taylor 2	1634–1635	9– 1–19	1500	190	Empire
G. C. Wood & Home Oil Refining Company.						
	Evans 3	1860–1965	9–29–19	Dry sand.		
Western Oil Corporation.						
	Elsea 2	1674–1692	9–22–19	1000	270	Western
	Elsea 3	1697–1705	9–22–19	800	....	.....
Burk 88 Oil Company.						
	Elsea 1	1698–1721	9– 1–19	300	....	.....
Carey Brothers.						
	Elsea 1	1710–1725	9– 8–19	1000	....	.....
William Daniels, Agent.						
	Brannen 1	1694–1706	9– 8–19	300	....	.....
Blue Bell Oil Company.						
	Slama 1	Aban. 2000	9–15–19	....	....	.....
Fowler Farm Oil Company.						
	Brannen 1 (Ls. 2)	1703–1719	9– 1–19	..75	....	.....
Hill & Roberts.						
	Renner 1	1773–1801	9–15–19	350	318	Magnolia
Marjay Oil Company.						
	Renner 1	1756–1772	9– 1–19	500	152	Texas-Magnolia
	Renner 3	1763–1717	9– 1–19	500	152	Texas-Magnolia
	Renner 4	1736–1755	9– 1–19	600	152	Texas-Magnolia
	Renner 5	1728–1748	9– 1–19	1000	152	Texas-Magnolia
Oklahoma Oil & Refining Company.						
	Renner 1	1720–1740	9– 1–19	1000		
Army Man's Oil Company.						
	Taylor 1 (blk 96)	T.D. 1653	10– 8–19	1500	....	.....
Barclay & Meadows.						
	Renner 1 (blk 75)	T.D 1780	10– 8–19	250	....	.....
Black 84 Oil Company.						
	Waggoner 1	T.D. 1709	10– 8–19	1000	....	.....
Brooks Oil Company.						
	Elsea 1 (blk 88)	T.D. 1668	10– 8–19	300	....	.....
Burk Valley Oil Company.						
	Elsea 1 (blk 88)	T.D. 1716	10– 8–19	500	....	.....
Double F Oil Company.						
	Taylor 1 (blk 98)	T.D. 1604	10– 8–19	1000	104	E. Jones-Texas
Fort Hollis Oil Company.						
	Vogel (blk 74)	T.D. 1813	10– 8–19	800	91	Crude oil mkt.
Gray Gander Oil Company.						
	Elsea 2 (blk 88)	T.D. 1718	10– 8–19	500	....	.....
Hill & Roberts.						
	Renner 2 (blk 75)	T.D. 1791	10– 8–19	300	....	.....
	Renner 3 (blk 75)	T.D. 1794	10– 8–19	300	....	.....
Howard Weber Oil Company.						
	Elsea C-2 (blk 88)	T.D. 1709	10– 8–19	400	....	.....
International Oil Company.						
	Elsea 1 (blk 88)	T.D. 1673	10– 8–19	500	....	.....
Kansas City Gulf Oil Company.						
	Taylor 2 (blk 97)	T.D. 1657	10– 8–19	75	93	Magnolia
Kirby Oil Company.						
	Taylor 1 (blk 96)	T.D. 1665	10– 8–19	75	....	.....
Lesh Drilling Company.						
	Waggoner 4 (blk 87)	T.D. 1627	10– 8–19	800	....	.....
Livingston Oil Corporation and Bryan Brothers.						
	Taylor 8 (blk 97)	T.D. 1673	10– 8–19	1000	....	.....
Marjay Oil Company.						
	Waggoner 11 (blk 87)	T.D. 1583	10– 8–19	800	....	.....
McMann et al.						
	Elsea 1 (blk 88)	T.D. 1717	10– 8–19	800	....	.....
Midce Petroleum Company.						
	Taylor 1 (blk 98)	T.D.	10– 8–19	1200	130	Johnson
Middles States Oil Corporation.						
	Taylor 1 (blk 96)	T.D. 1618	10– 8–19	1200	....	.....
Nabor & Brundage.						
	Taylor 1 (blk 98)	T.D. 1619	10– 8–19	2000	....	.....
Oklahoma Oil & Refining Company.						
	Elsea 1 (blk 88)	T.D. 1709	10– 8–19	500	....	.....
	Elsea A-1 (blk 88)	T.D. 1710	10– 8–19	500	....	.....
Golconda No. 2 Oil Company.						
	Elsea 1	1706–1722	10–22–19	1200	....	.....
Great Lakes Oil Company.						
	Taylor 1	1669–1686	10–22–19	2000	....	.....
Howard Weber Oil Company.						
	Brannon 12	1704–1720	10–22–19	500	....	.....
	Elsea B-1	1692–1714	10–22–19	600	246	Empire
Humble Oil & Refining Company.						
	Evans 2	1583–1613	10–22–19	1000	69	Humble
Penter & Fenton.						
	Morgan A-1	1626–1628 / 1634–1644	10–22–19	200	....	.....
Penny, Harris & Staley.						
	Elsea 1	1704–1716	10–22–19	250	....	.....
Southwestern Petroleum Company.						
	Elsea 3	1696–1718	10–22–19	500	....	.....
	Elsea 6	1698–1717	10–22–19	400	....	.....
Texas Company.						
	Morgan 11	1578–1630	10–22–19	1700	271	Texas
	Morgan 19	1595–1625	10–22–19	600	272	Texas
Metex Oil Company.						
	W. F. George 1	1691–1710	10–22–19	400	....	.....
Northwestern Petroleum Company.						
	Elsea 1	1632–1651	10–22–19	500	....	.....
Fletcher Oil Company.						
	Bashara 1	1676–1684	10–22–19	50	....	.....
Olsan Davis Oil Company.						
	Taylor 2 (blk 98 Ls 2)	T.D. 1640	10– 8–19	1500	..82	Texas
	Taylor 1 (blk 98 Ls 3)	T.D. 1616	10– 8–19	1800	....	.....
	Taylor 1 (blk 97 Ls 6)	T.D. 1658	10– 8–19	800	....	.....
O'Neill et al.						
	Vogel 3 (blk 74)	T.D. 1776	10– 8–19	1000	....	.....
Skelly Oil Company.						
	Waggoner 8 (blk 87)	T.D. 1654	10– 8–19	1000	....	.....
Southwestern Petroleum Company.						
	Elsea 4 (blk 88)	T.D. 1717	10– 8–19	800	....	.....

NORTHWEST EXTENSION AT BURKBURNETT—Cont.

RECORD OF WELLS DRILLED IN

Company	Tract—Well	Sand Record	Date Comp.	Initial Est. Prod.	Present Ppl. Runs	Pipeline
J. I. Staley & Company.						
	Taylor 1 (blk 96)	T.D. 1738	10- 8-19	600	....	.....
S. W. S. Oil Company.						
	Schmisseur 2 (blk 73)	T.D. 1685	10- 8-19	800	....	.....
Swindler Oil Company.						
	Elsea 1 (blk 88)	T.D. 1713	10- 8-19	1300	79	Texas
Texas Company.						
	Morgan 3	T.D. 1612	10- 8-19	1200	271	Texas
Texas Crude Oil Company.						
	Vogel 1 (blk 74)	T.D. 1860	10- 8-19	400	....	.....
Western Oil Corporation.						
	Elsea 3 (blk 88)	T.D. 1712	10- 8-19	800	....	.....
Western Oil Corporation & Pat Casey.						
	Taylor 2 (blk 97)	T.D. 1681	10- 8-19	1000	203	Western.
	Taylor 3 (blk 97)	T.D. 1673	10- 8-19	1000	....	.....
	Taylor 5 (blk 97)	T.D. 1672	10- 8-19	1000	204	Western
Wichita American Petroleum Company.						
	Vogel 2 (blk 74)	T.D. 1822	10- 8-19	1000	....	.....
Willis Farris.						
	Taylor 1 (blk 96)	T.D. 1703	10- 8-19	400	120	Magnolia
Pennsylvania No. 2 Oil & Gas Company.						
	Michna 1 (blk 819)	T.D. 1728	10- 8-19	Dry	....	.....
Southwestern Petroleum Company.						
	Elsea 3	1697–1719	10–29–19	400	....	.....
Texas Company.						
	Fowler 3	1557–1575	10–25–19	200	....	.....
	Fowler 14	1707–1729	10–29–19	600	....	.....
	Morgan 6	1615–1621	10–29–19	500	....	.....
	Morgan 12	1602–1630	10–29–19	800	....	.....
	Morgan 13	1612–1654	10–29–19	600	....	.....
	Morgan 23	1563–1601	10–29–19	580	....	.....
Toumanin Oil Company.						
	Waggoner 5	1580–1601	10–29–19	400	....	.....
	Waggoner 6	1572–1594	10–29–19	500	....	.....
Apex Oil Company.						
	Waggoner 2 (blk 86)	T.D. 1607	10–15–19	1200	....	.....
Barclay & Meadows.						
	Vogel 4 (blk 74)	T.D. 1791	10–15–19	500	....	.....
	Vogel 5 (blk 74)	T.D. 1792	10–15–19	500	254	Magnolia-Texas
Gulf Production Company.						
	Waggoner 1	T.D. 1608	10–15–19	125	....	.....
	Waggoner 4	T.D. 1644	10–15–19	1500	201	Gulf
	Elsea B-1	T.D. 1700	10–15–19	100	....	.....
Langford, Staley & Chenault.						
	Vogel 2	T.D. 1777	10–15–19	600	....	.....
	Vogel 3	T.D. 1762	10–15–19	500	....	.....
Majestic Oil Company.						
	Vogel 2	T.D. 1783	10–15–19	2000	....	.....
Texas Eagle Oil Company.						
	Waggoner 1 (blk 72)	T.D. 1792	10–15–19	750	....	.....
Trio Oil Company.						
	Evans 1	T.D. 1573	10–15–19	150	....	.....
Burk-Senator Oil Company.						
	Stateland 1	1589–1595	10–29–19	200	....	.....
Burk Tye Oil Company.						
	Taylor 1	Dry 1700	10–29–19	....	....	.....
W. J. Chealy.						
	Taylor 1	1601–1620	10–29–19	800	....	.....
Fern Oil Company.						
	Waggoner 2	1665–1700	10–29–19	1500	....	.....
Fisher & Gilliland.						
	Evans 1	T.A. 2050	10–29–19	....	....	.....
Godley Weber Oil Company.						
	Brannon B-10	1696–1715	10–29–19	800	....	.....
Gulf Production Company.						
	Elsea 1 (blk 88)	1697–1714	10–29–19	500	....	.....
	Taylor 1	1616–1637	10–29–19	1900	....	.....
	Taylor 4 (blk 98)	1609–1637	10–29–19	600	....	.....
Henry Ford Oil Company.						
	Sneddy 1	1570–1580	10–29–19	T.A.	....	.....
Humble Oil & Refining Company.						
	Waggoner B-3	1599–1618	10–29–19	300	....	.....
Marjay Oil Company.						
	Waggoner 3	1602–1618	10–29–19	400	....	.....
Noble & Livingston.						
	Waggoner 3 (blk 86)	1587–1611	10–29–19	1200	....	.....
	Waggoner 8 (blk 85)	1584–1628	10–29–19	750	....	.....
	Waggoner 15 (blk 85)	1581–1599	10–29–19	350	....	.....
Ranger Burk Oil Company.						
	Waggoner 5	1580–1610	10–29–19	1000	....	.....
Sinclair Consolidated Oil & Gas Company.						
	Morgan 1	1591–1600	10–29–19	120	....	.....
	Morgan 3	T.D. 1637	10–29–19	90	....	.....
	Brannon 2	1726–1745	10–29–19	15	....	.....
Skelly Oil Company.						
	Waggoner 2 (blk 87)	1643–1660	10–29–19	1000	....	.....
	Waggoner 3 (blk 87)	1640–1667	10–29–19	1000	....	.....
	Waggoner B-1	1565–1590	10–29–19	800	....	.....
	Waggoner B-7	1590–1616	10–29–19	800	....	.....

T.A.—temporarily abandoned; T.D.—total death.

Oklahoma Production Passes 221,000 Barrel Mark During Week

(Continued from Page 64)

than the Bartlesville, and it is their opinion that the Bartlesville sand is dry in that locality. The Squirrel sand is found immediately on top of the Bartlesville, only a small break dividing the two.

The Marland people have two wildcats in the western part of the Osage, each showing for wells. The Kay County Gas Company No. 1, Alexander farm, in the center of the northeast of the northwest quarter of Sec. 11-25-3E, has 2,000 feet of oil in the hole that is coming from a sand at 2,573 feet. The nearest production to this well is the Ponca City field in the township to the west of it.

The Marland Refining Company No. 1, in the center of the north line of the southwest of the northeast of the northwest of Sec. 11-25-5, set the 6-5/8 inch casing at 3, 537 feet, and found sand at 3,565 feet, that at 3,574 feet,—still in sand, there is 2,000-feet of oil in the hole and it will make a pumper. It is about fifteen miles from production.

The C. K. Dresser wildcat in the southeast corner of the northwest of Sec. 23-23-7, in the western Osage, is pumping 100 barrels from sand found at 2,820 feet, in the Mississippi lime. It found the top of the lime at 2,594 feet.

The Globe well in the southeast corner of the northwest of the southeast of the southeast quarter of Sec. 23-21-9, south of Osage Junction in the Osage, is now estimated good for 100 barrels at 2,200 feet. It is some little distance from production. Rigs have been moved in for Nos. 2 and 3.

Benmo Oil Company No. 3, Adams farm, in the southeast corner of the southwest of the southeast quarter of Sec. 31-15-12, south of Beggs, found the sand at 2,730 feet, and with it just touched, the hole filled up 1,500 feet with oil. It is three locations from a salt water well in the deep sand, and is located in Dutcher sand territory, but is a mile from nearest production from the sand in which it is showing.

Sheppard Oil Corporation No. 2, Rodgers farm, in the southwest corner of the southeast of the northwest of Sec. 35-15-11, west of Beggs, found sand at 2,749 feet, and started off at 1,440 barrels daily.

Link Oil Company No. 6 in the center of the west line of the southwest of the northwest of Sec. 28-15-15, in Muskogee county, near Haskell, found sand 1,795-1,800 feet, and is making 500 barrels.

Mutual Development Company No. 2, in the center of the north line of the northeast of the northwest of Sec. 7-12-11, in Okfuskee county, near Henryetta, found top of sand at 2,559 feet, and started off making 15,000,000 feet of gas. Operations are shut down waiting for the gas to die down before drilling in. The well is one location west of No. 1, which opened a new pool three miles from production, and it is the first well to reach the sand following the completion of the discovery well.

Roxana Petroleum Company No. 1, Maynond farm, in the northwest corner of the northeast of the northeast of Sec. 13-19-5, in the Yale pool, which started off at 800 barrels from sand in the Mississippi lime from 3,515-20 feet, dropped off in production somewhat, and was drilled 10 feet deeper. The production was brought back to 700 barrels daily.

Development northwest of Bristow has been discouraging. The Gypsy well in the northeast corner of the southwest of the southwest of Sec. 16-16-8, will make only 10 barrels on the pump, and the Roxana well in the southeast corner of the northwest of Sec. 9-16-8, is swabbing between 10 and 15 barrels. Neither will pay out according to the looks of things.

DALLAS, TEXAS, Nov. 10.—Crude oil runs for month of October are reported by the pipe line department of the Magnolia Petroleum Company as follows:

Coleman crude	137.64
Healdton crude	274,877.05
Electra crude	648,391.15
Henrietta crude	6,083.93
Cushing crude	None
Yale crude	None
Augusta crude	26,477.38
Duncan crude	146,785.85
Heavy Corsicana crude	12,465.04
Light Corsicana crude	15,461.79
Eldorado Crude	55,486.85
Comanche crude	524,803.49
Olden crude	132,184.42
Total	1,843,154.59

Water shipments for the month of Octobere were as follows:

Date	Steamship	Refd. in Gals.
10-3	Mina Brea	1,604,858
10-4	Ranella	2,375,901
10-10	Galsa	3,029,528
10-10	British Earl	2,194,748
10-11	Barge 83	1,292,446
10-11	Sacony	1,563,182
10-16	Ashtabula	2,594,588
10-24	Brindella	1,630,832
10-24	Potomac	1,400,440
		17,686,523

O AND G BELTS

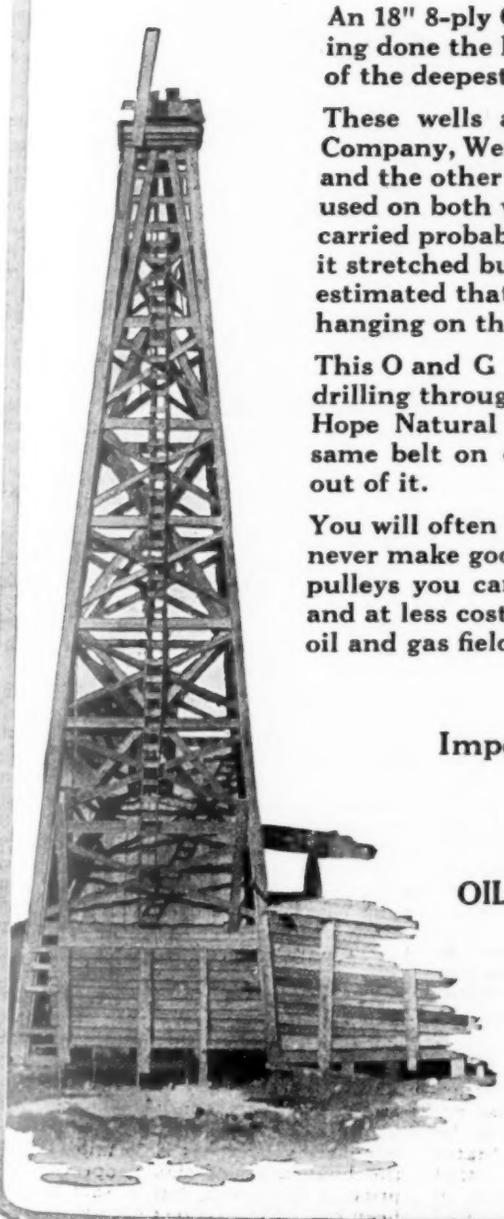
O and G and the Two Deepest Wells in the World

An 18" 8-ply O and G belt has the distinction of having done the hardest part of the work in drilling two of the deepest wells in the world.

These wells are owned by the Hope Natural Gas Company, West Virginia. One well is 7,386 feet deep and the other is 7,579 feet deep. The same belt was used on both wells, and in spite of the fact that it carried probably the heaviest load ever put on a belt, it stretched but little and gave excellent service. It is estimated that 17,000 pounds of tools and cables were hanging on the belt after the wells were a mile deep.

This O and G belt gave 260 24-hour days of service drilling through the hardest kind of formations. The Hope Natural Gas Company figures on using this same belt on other jobs and getting more service out of it.

You will often find O and G belts where others could never make good. When you put O and G on your pulleys you can bank on its doing the work better and at less cost. O and G is made specially for the oil and gas fields—and it's right at home there.



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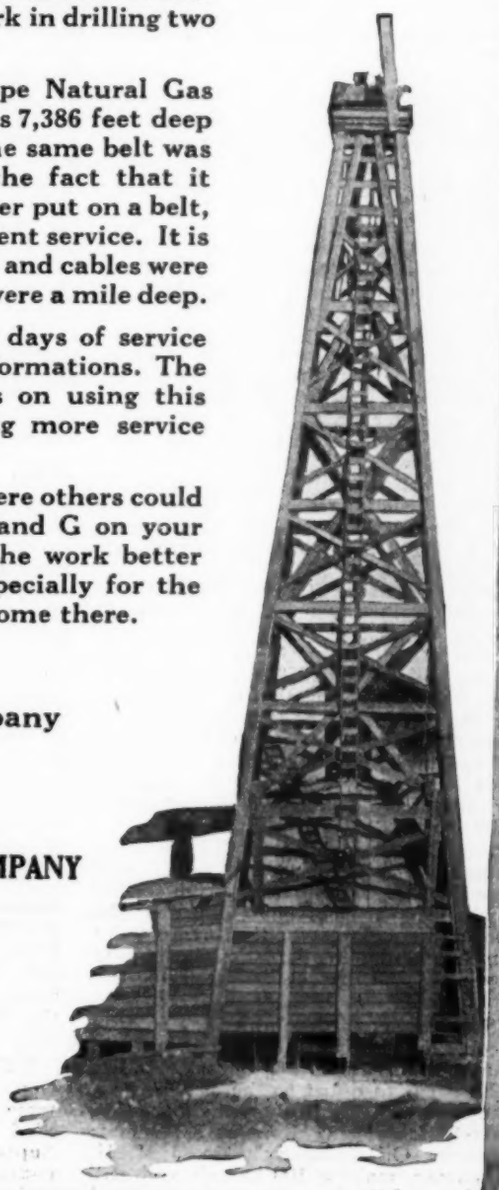


Pleasant Grove And Desdemona Lead In Black Lime Production

FORT WORTH, Nov. 9.—Aside from the Desdemona district of the general Ranger territory and the Pleasant Grove division of the Ranger pool proper, the latter in Eastland county, operations for the week in the black line producing area were without particular importance. In these two divisions, and the same is true of Stephens county as well, completions were for the most part in little general importance, their chief interest being to the individual operator, or company, operating the leasehold.

In the Ranger pool proper the Humble Oil & Refining Company has a freak well in No. 5 State Land, on a narrow excess strip that runs north and south almost the entire length of the John York survey, east of which the Norwood, Copeland, Roper and other productive tracts of the "loose sand" area were developed. The Humble's well found the pay about 300 feet higher than others in the John York survey and is good for 600 barels, initial production, with 5,000,000 cpbic feet of gas at 3,013-3,015 feet.

Beyond and to the westward, in what has come to be known as the Pleasant Grove district, the No. 1 Hawk well of Folsom & Sheffler, which was reported in last week's issue as good for 1,500 barrels, has increased its flow as a final completion to 2,400 barrels at 3,625-3,632 feet. The well is southeast of the Empire Gas & Fuel Company's first Ranger well, on the Peeples tract, and is two miles south of other production in this territory.

The Brooks tract was the most prolific source of new wells in the Pleasant Grove district, the Ranger Central Oil Company getting a 4,000 barrel well, upon deepening a few feet after last week's report, this test now producing from pay at 3,520-3,536 feet; Texas-Arkansas Oil Company's No. 1 Brooks, 1,400 barrels at 3,330-3,351 feet; Arizona-Texas Oil Company's No. 1 Brooks, flowing 100 barrels at 3,281-3,310 feet.

Other Pleasant Grove completions included No. 2 Turner of Barclay et al, flowing 200 barrels at 3,333-3,345 feet; Fain et al's Pleasant Grove school test, fishing and flowing 250 barrels at 3,513 feet. Elsewhere in the Ranger pool, the Prairie Oil & Gas Company's No. 2 Cunningham is making 100 barrels of oil and a lot of salt water at 3,600-3,605 feet, and its No. 7 J. R. Woods, was completed dry after a shot at 3,465-3,500 feet.

Sinclair Consolidated Oil & Gas Company's No. 2 Manning, which was shot into a 5,000 barrel producer 10 days ago, to the northeast of the Caddo pool and southwest of the town of the same name, in Stephens county, is now flowing 3,250 barrels daily into the pipeline.

Stephens county completions for the week are largely routine in nature, in cluding the Brown Oil Company's No. 1 Heatley, an offset to the Texas Company's No. 4 K. Stoker, making 1,200 barrels from gray lime at 3,219 feet; Superior Oil Company's No. 3 M. H. Hagaman, making 100 barrels and still drilling at 3,380 feet; Texas Pacific Coal & Oil Company's No. 3 R. M. Rogers, 25 barrels after a 260 quart shot at 3,127-3,186 feet; Thraves Oil Company's No. 1 Stephenson, 100 barrels at 3,536-3,548 feet; Texas Company's No. 1 W. L. Geswick, 7,000,000 cubic feet of gas, shut down at 2,100 feet and Moore & Roesier's No. 2 Maden, flowing oil and salt water at 1,900 feet.

Two tests of the Sinclair Consolidated Oil & Gas Company in the Desdemona district are making more than 100 barrels of oil each, daily, in stages of incompletion. No. 1 Thornton, southeast of the town of Desdemona about a mile and a half and offsetting the Comanche Northern Oil Company's No. 1 Carruth, is flowing 120 barrels at 2,716 feet, top of the pay; No. 1 Foote, which offsets the Mary Elizabeth Oil Company's No. 1 Anderson, east of Desdemona, is flowing 150 barrels at 2,905 feet.

Comanche Northern Oil Company's third well on the Carruth is in, making 400 barrels daily at 2,672 feet. Three and a half to four miles east of the town of Desdemona, and a mile and a half east of the Comanche Home Oil Company well, the Alvin Lake test on the Weaver tract has five feet of sand at 2,880 feet, and is flowing 50 barrels.

Humble Oil & Refining Company has shipped a first 15 cars of crude oil from its Moorman well at Sipe Springs, southwest of other production along the Eastland-Comanche county line, and this well is now rated good for 300 barrels daily despite a fishing job that continues. The well was brought in several months ago, and because of the grief attached to its completion it was not until now that it was certain to a fair degree how much it was good for.

Including high flush production of the Desdemona district for the last ten days at its maximum, this division would be good currently for about 45,000 barrels daily, but pipeline runs for the week continue at roughly 32,500 barrels and there is no congestion apparent at this time. A few wells remote from others have not been connected to pipelines and with the usual dropping off of wells from their high flush production it may be said that there is little oil being currently produced that is not being transported immediately.

Crude in storage at Ranger amounts to roundly 5,000,000 barrels, with approximately 2,230,000 barrels storage room. Magnolia Petroleum Company tanks at Olden (Ranger) are full and this company is not taking any oil for the present. The Prairie has 890,000 barrels of storage room, roughly; Gulf Pipeline Company, 200,000; Texas Company, 260,000; Texas Pacific Coal & Oil Company, 365,000; Wagner & Steiner, 65,000; Pierce Oil Corporation, 108,000; Humble Pipeline Company, 14,000; Sun Company, 50,000, and the Sinclair pipeline, 140,000.

TULSA, OKLA., Nov. 9.—Attorney General Freeling, of Oklahoma, has returned from Washington, where he filed a motion in the United States Supreme Court to bring soit in that conrt against the state of Texas, in order to test title to the bed of Red river.

Operators To Make Thoro Test In Nevada

FALLON, NEV., Nov. 7.—The prospective oil field at Fallon, Nev., is daily taking on greater activity, and with the arrival of new rigs the future looks bright for complete proving of the field. Five companies are drilling and several others have made negotiations for equipment.

The Silver State Oil Company, composed of California men, has spudded in on Sec. 31-18-31E, about a mile and a half north and east of Salt Wells. They have started with a 12-inch hole.

A. E. Wiley, a geologist, and said to be a near relative of Dr. Wiley, the pure food advocate, spent three weeks in the field for a syndicate, and in his report endorsed it as a possible productive oil section, giving particular endorsement to territory 10 to 15 miles to the east of here, the western slope or base of the Stillwater range, where, he says there is a showing of the tertiary fossils and fresh water deposits in the shales and sandstones of the Neocene series.

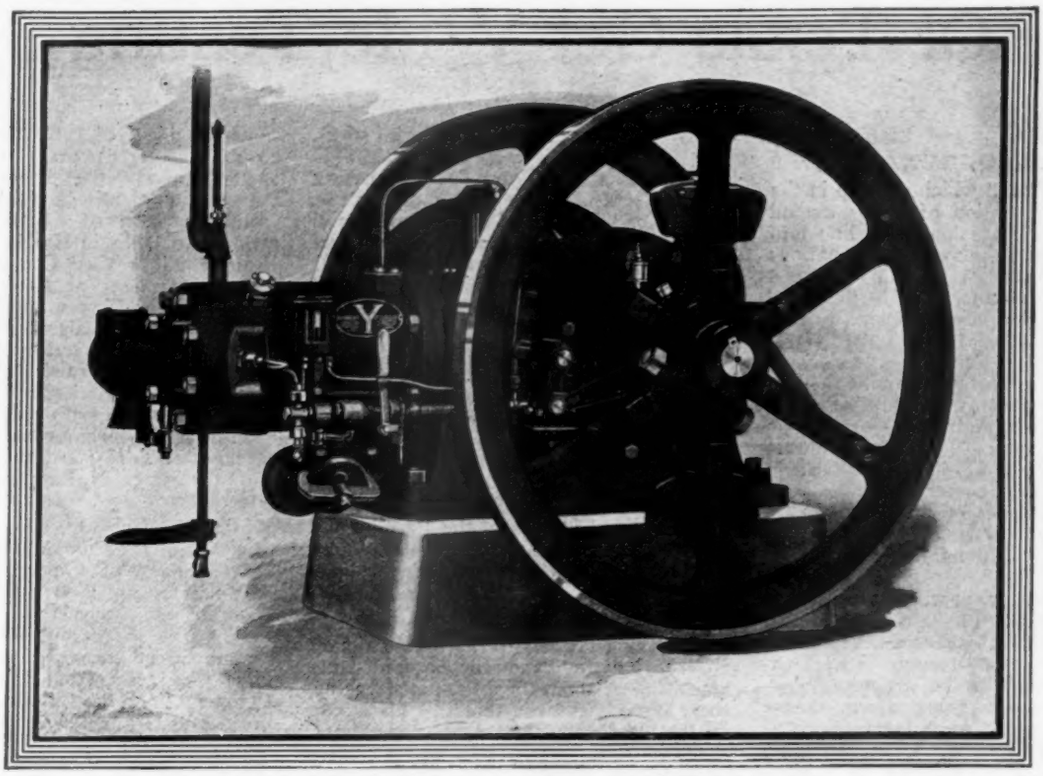
The structure of the surface plains of this field would indicate simple monocline, but with close study in detail the beds may undulate somewhat, forming slight anticlines and synclines for the disposition of oil pools. "The belts of shale and sandstone so prominently outcropping in Townships 17 and 18, Range 30 and 31, Townships 19 and 20, Range 31 and 32, all bear unmistakable evidence that the underlying formation should contain petroleum in commercial quantity and quality. The shales of the Fallon field bear a close resemblance to those on the western slope of the Sierra Nevada in some of California's best oil fields."

Following Wiley's examination, oil was reported as having been discovered in a well being drilled on the Williams ranch, about 5 miles from here and about the same distance from where drilling for oil is now going on. The ranch is in a position where seepage from the field could be expected to show.

There has been organized at Reno the Monterey County Oil Company, composed of Nevada capitalists, to drill test wells in the prospect fields of Monterey county, California, on the coast some 23 miles southwest of Coalinga and in the neighborhood of Bradley.

Many test wells have been drilled in Monterey county, a number by the Standard a few years ago. Commercially, all were failures, only a few found anything beyond slight showings in oil and gas, but nevertheless many persons still have confidence. The present venture has been promoted by S. S. Simon, a California geologist and operator, who has long given attention to Monterey county. The company has 15,000 acres leased. The land was withdrawn by President Taft and but recently restored.

LEXINGTON, KY., Nov. 10.—The Associated Producers' Oil Company has taken over all the holdings of the Tidal Oil Company in Estill county. The latter company owned the F. M. Maple tract of around 4,000 acres, with 48 wells of a production estimated at 200 barrels daily. It is 55 miles around the boundaries of this property. The price is not given, but is said to have been one of the largest ever paid in the Kentucky fields.



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Eastern New Mexico And Panhandle Of Texas Get Wide Testing

Staff Special

AMARILLO, TEXAS, Nov. 8

FORMATIONS which outcrop in the Panhandle region of Texas extend across the state boundary line into New Mexico, and the surface formations being of similar lithologic character, test drilling which is under way in this general territory takes on a somewhat related interest when viewed from the geological viewpoint.

With thirty-nine tests actually drilling or definitely located in sixteen Panhandle counties of Texas, and a number of tests being made in eastern New Mexico, operations also reaching into Tularosa Basin in the central southern part of the latter state, the possibilities of this vast domain as related to search for oil in commercial quantities grow in the interest of "wildcatters."

While the major operating companies are drilling in the Panhandle of Texas, the play seems to be local to a considerable extent, and in the territory north of Amarillo, where a part of the structure shows 25 to 30 tests are going down. Lease prices have gone in some instances to as high as $150 an acre as far as two miles ahead of drilling operations.

From a point east of Amarillo, Texas, to central New Mexico a normal easterly to south 70 east dip obtains, of 20 feet to the mile, which is accentuated in uplifts along the Texas-New Mexico boundary line, herein described. An easterly dipping monocline, therefore, covers the western Panhandle and eastern New Mexico region in general, it is pointed out by W. G. Matteson, a widely quoted geologist of Fort Worth, who adds:

Chances For Pay Sand

"As all the evidence available indicates shallower Pennsylvanian sea conditions in extreme eastern New Mexico and westward, with the possible presence of old Pennsylvanian shore lines, the chances for favorable sand conditions in the Pennsylvanian series formations in this vicinity are good."

The deepest test in the Panhandle country of Texas is the Haines-Trigg on the Trigg ranch in Potter county, located 1,320 feet south and 2,640 feet east of the northwest corner of Sec. 37, block 5, G. & M. survey, which had a slight showing of oil at 2,160 feet and is now drilling below 3,100 feet. This test is reported to have had a showing of gas around 2,500 feet, said to have tested wet and amounting to several million cubic feet.

In the same county, 150 feet south and 1,700 feet west of the northeast corner of Sec. 2, Block B-11, E. L. & R. R. railroad survey, the Ranch Creek Oil & Gas Company's No. 1 Masterson is now at a total depth of 2,800 feet after getting gas sands at 1,710-1,725 and 1,760-1,775 feet, good for about 6,000,000 cubic feet daily; rainbow showings of oil at 2,350; and again making some gas at 2,800 feet, while fishing for under-reamer with a rope knife stuck below the casing.

Leila Lake Oil Association is drilling below 2,370 feet in Donley county, on the Immon tract, 900 feet each way from the southwest corner of Sec. 107, Block G-6, G. C. & S. F. railway survey, having set 8¼-inch casing at 1,210 and 6⅝-inch casing at 2,326 feet. Another Potter county test is the No. 1 Bivens of the Amarillo Oil Company, 3,960 feet south and 500 feet west of the northeast corner of Sec. 106, Block 46, H. & T. C. survey, which had a showing of gas at 1,536 feet, a light showing of oil at 1,550 and is now drilling below 1,830 feet in blue lime.

Other tests, which have failed to reach depths attained by the wells aforementioned, will be touched upon further down in the present summary of operations, but in connection with these currently mentioned it is pertinent to deal with the general possibilities of Panhandle drilling, which so far has been in the Permian red bed formations. To date no drilling operation has penetrated to the Pennsylvanian formation.

Test Encounters Black Lime

The Trigg-Haynes test, aforementioned, is reported to have encountered some black lime at about the 3,100-foot level, but there is no assurance that this black lime is the Pennsylvanian formation. From the geological viewpoint it seems certain, according to Mr. Matteson, who has made a comprehensive investigation of the general Panhandle territory, that a conservative estimate would place the thickness of the Permian red beds to be penetrated before the Pennsylvanian is reached, at a minimum thickness of 3,200 feet, and it may be as deep, he says, as 3,600 feet, or somewhere between these two levels.

It is not known, geologists and operators point out, how far the Pennsylvanian might have to be penetrated before production might be picked up, so that the proposition is regarded as probably deeper than Ranger, which gets the black lime pay in the Bend series of the Pennsylvanian at 3,200-3,300 to 3,400-3,500 feet.

There is no doubt, geologists point out, that there is a considerable structure of attractive nature, but the big and [illegible] question is the sand condition [illegible] the Pennsylvanian. The nearest deep test that has penetrated the Pennsylvanian formation is at Spur, Dickens county, some 200 miles almost south of Amarillo. Here the Pennsylvanian was penetrated at 4,100 feet, or deeper, and on drilling to 4,500 feet showed nothing but limestone heavily saturated with bitumen. Owing to the tight nature of this limestone, oil in commercial quantity was not obtained.

If within the distance between Spur and Amarillo the Pennsylvanian sea has become shallower and the Pennsylvanian limes have given way to sand, then the possibility of obtaining oil in the Amarillo territory would seem attractive, according to geologists, but Mr. Matteson points out that it must be recognized that this is a speculative possibility that can be proved only by the drill and should the lime extend into the Amarillo country the possibilities of commercial production are greatly limited.

Meanwhile, accessions continue to the ranks of the major wildcatters giving a play to the Panhandle country. The Texas Pacific Coal & Oil Company, which brought in the "discovery" well at Ranger and which was the pioneer operator in that territory, has blocked 35,000 acres from the town of Channing, southeast toward Amarillo, in Hartley county. The Prairie Oil & Gas Company, much of whose operations at Ranger were on a 50-50 basis on Texas Pacific Coal & Oil Company acreage, also has blocked 20,000 acres in the same county to the west of Channing. The prairie also has taken three separate blocks in Dallam county, near the point where a single tier of three counties of Oklahoma project westward separating Texas from an intersection with the states of Kansas, Colorado and New Mexico.

In Oldham county, where a number of tests are already under way, the General Oil Company of California has blocked 32,000 acres in the name of Percy T. Morgan and has made location on the Landergrin, 15,005 and 1,000 feet west of the northeast corner of Sec. 310, Block H-1, Cap reservation lands. Boise Oil Company, on the Landergrin, 400 feet north and 600 feet west of the southeast corner of Sec. 7-8N-3E, New Mexico meridian, set 15½-inch at 380 and 12½-inch at 880 to shut off quick sand, from which level it will under-ream.

Benedum & Trees are drilling below 725 feet in No. 1 Shelton, 1,980 feet south and 2,000 feet east of the northwest corner of Sec. 137, Brave sub-division, Oldham county; Gerton Trust Company has rig timbers at Vega and has made location for a test on the Herring, 300 feet each way from the southeast corner of the northwest quarter of Sec. 78, G. & M. survey.

In Moore county, the No. 1 Masterson, of the Masterson Oil Company, is a location, 1,320 feet east and 200 feet north of the southeast corner of Sec. 14, E. L. & R. R. survey; Tallehono Oil & Gas Company has rig up for a test on the Lockhart, 1,320 feet east and the same distance south of the northwest corner of Sect. 2, Block D. H. & G. N. survey, Roberts county; Happy Oil Company is shut down with a hole full of salt water at 608 feet on the Whitman, 1,050 feet each way from the southwest corner of Sec. 34, Block M-6, S. K. & M. survey, Swisher county; in Hartley county, where the Texas Pacific and Prairie Oil & Gas Company blocks are located, rig is already up for a test by Bivens, Dawson et al on the Dawson, 1,100 feet south and 1,320 feet west of the northeast corner of Sec. 35, Block 20, C. S. S. survey.

In Lipscomb county, the Hamilton Oil & Gas Company No. 1 Gray, 100 feet north and 2,640 feet east of the southwest corner of Sec. 352, Block 4, H. & T. C. survey, is shut down for 10-inch bit at 700 feet, and in Hemphill county, Allen & Taylor have rig up for a rotary test on the Schaller, 1,860 feet east and a similar distance north of the southwest corner of Sec. 117, Block 41, H. & T. C. survey.

Potter county is getting the biggest play, there being a total of ten tests to

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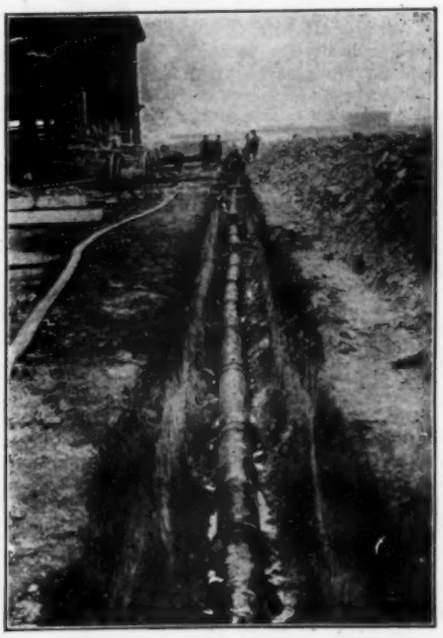

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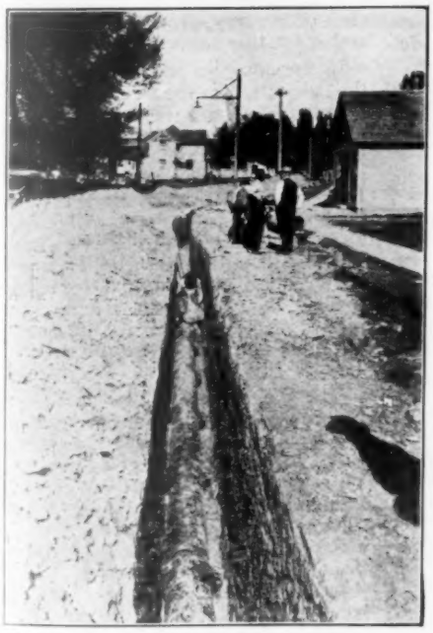

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its credit. Two of these are mentioned previously in this review. The other eight consist of the Amarillo Oil Company' No. 4 Masterson, rigging up 200 feet south and 200 feet east of the northwest corner of Sec. 108, Block O-18, D. & F. survey; Bonita Creek Oil Association's No. 1 Bivens, location,, 200 feet south and 200 feet east of the northwest corner of Sec. 29, Block 5, G. & M. survey; Emerald Oil Company (A. J. Diescher et al) No. 1 Masterson, one half mile south and a quarter of a mile east of the northwest corner of Sec. 82, Block 3, G. & M. survey, drilling at 710 feet; Jacobs et al No. 1 Bivens, rigging up in Sec. 16, Block M-3, A. B. & M. survey; Seven States Petroleum Company, now building rig after spudding with Star machine on the Holbrook, 750 feet west and 60 feet south of the northeast corner of Sec. 127, Block 2, A. B. & M. survey; Miller Brothers, drilling at 970 feet with rotary on the Tanner farm, A. B. & M. survey, Sec. 59, Block 2, 300 feet from the south line of Sec. 59; and the White Oil Corporation, which spudded in by hand with 4-inch pipe on the Masterson, 200 feet south and 1,000 feet east of the northwest corner of Sec. 5, Block 3, G. & M. survey, the White interests contracting to drill a 3,500-foot hole.

In Armstrong county, southeast of Amarillo, the Goodnight Oil Company is drilling at 420 feet on the Goodnight Buffalo ranch, now owned by W. J. McAlister, oil operator of Wichita Falls, who with Colonel Goodnight, the previous owner and still manager, hold the royalty interest. This test is 1,320 feet south and 2,640 feet east of the northwest corner of Sec. 135, Block G-3, H. & G. N. survey. The Armstrong Oil Company has made location 650 feet east and a similar distance north of the southwest corner of Sec. 20, Block 1, T. W. & N. G. survey; location has been made also for a test on the Puckett by Bob Hamilton in the center of the southeast quarter of Sec. 29, Block G-1, G. C. & S. F. survey.

In Carson county, Capital Petroleum Company's Purvine, is shut down for pipe after spudding in, 2,600 feet west and 2,600 feet south of the northeast corner of Sec. 11, Block T, B. S. & F. survey; Gulf Production Company's No. 1 Burkburnett is drilling at 250 feet, 2,970 feet south and 990 feet east of the northwest corner of Sec. 118, Block 5, I. & G. N. survey; Jacobs, Heyle, Dunn & North have made location about 10 miles west of the town of Panhandle, 950 feet each way from the southeast corner of Sec. 33, Block M-4, J. Gibson survey.

Penn-Tex Oil Company is moving in material for a 3,500 foot test in Deaf Smith county on the W. B. Palmer tract where they have 15,040 acres blocked. The test is located 200 feet west and 2,540 feet south of the northeast corner of the northwest quarter of Sec. 25, Block 3, A. B. & M. survey; Knox Oil Company has rig up for No. 1 Landergrin, 300 feet each way from the southeast corner of Sec 27-7N-1E; Hereford Oil & Gas Company is under-reaming 20-inch casing at 240 feet on the J. I. Neiberill tract, one-half mile east and 150 feet north of the southwest corner of Sec. 34-4N-4E, Carter & Head sub-division.

Burk Creek Oil Company's Mereman, in Donley county, is drilling below 610 feet, 300 feet each way from the southeast corner of Sec. 66, Block 21, H. & G. N. survey; Don Lee Oil Company is shut down at 60 feet in No. 1 Garner, 450 feet each way from the northwest corner of Sec. 88, Block C-6, G. C. & S. F. railroad survey and the Riverside Oil & Gas Company has rig timbers on the ground for its Bogard test, 900 feet east and 1,200 feet south of the northwest corner of Sec. 9, Block C-9, G. C. & S. F. survey.

In Hutchinson county, the Oklahoma State Development Company has shut down at 80 feet for 20-inch casing on the Smith Capers, in the center of the southeast quarter of Sec. 10, Block Y, L. & G. N. survey; the Coble-Haywood Oil Syndicate is building rig on the Coble ranch, a half mile west and seven-sixteenths of a mile north of the southeast corner of Sec. 15, T. C. R. R. survey.

Coble Petroleum Company is drilling below 210 feet on the Hollowfield, Hall county, 200 feet south and 250 feet west of the northeast corner of Sec. 33, Block 18, H. & G. N. survey; Home Peoples' Oil Company is drilling at 990 feet after setting 12½-inch at 963 in the No. 1 Barnett, southwest corner of Sec. 47, Block 29, Texas & Pacific railroad survey; Grant Oil Company has made location on the Sexour, southeast corner of the southeast quarter of Sec. 23, Block 20, H. & G. N. survey and the Craola Oil Company has made a location on the T. & P. survey, northeast corner, Sec. 80, Block 3, T. R. Fuston land.

So far there have been no drilling activities in Motley, Ochiltree, Parmer, Sherman, Hansford, Lamb, Castro, Dallam, Floyd, Hale, Briscoe or Bailey counties.

New Mexico Gets Gasser

As regards New Mexico, the No. 1 McGee of the Tucumcari Oil & Gas Company, 12 miles south of Tucumcari, is the first to show oil, in limestone at about 2,200 feet, it being reported to have showed several million cubic feet of gas at approximately the 2,500 foot level upon going deeper. Effort is now being made to case off this gas in order to go still deeper. M. H. Hagaman, on whose acreage at Ranger many of the wells in the field of the same field were drilled, is one of the principals in the Tucumcari Oil & Gas Company.

Among other tests in eastern New Mexico are the No. 1 Trigg of the Comanche Home Oil Company, a location, between mileposts 26 and 27, on the Dawson branch of the El Paso & Southwestern railroad, Sec. 35, Township 15N-Range 30E; the Bucyeros test in south Union county, which is drilling at a depth of about 1,000 feet; the Sanjou test, a location, close to the town of Sanjou; the Glen Rio test, a rig north of the town of the same name on the Texas-New Mexico line; the Portales test, near the town of Portales, Roosevelt county. Rees Brothers, of Pittsburgh, are rigged up for a test in the southeast quarter of Sec. 25-13-35E; W. F. Funk, of Sistersville, W. Va., is drilling in Sec. 2-20N-31E; Producers & Refiners Corporation has located a test six miles west of Carlsbad, Township 228, Range 26E; location has been made for a test in the northeast quarter of Sec. 14-2N-27E; United Oil Company is drilling in Union county and the Commonwealth Oil & Refining Company is getting ready to drill in Sec. 21-11-18E, Lincoln county, besides a number of additional locations of other interests known to have been made but not announced in Lincoln and Quay counties.

Blocking up of acreage by major interests began in New Mexico as long as two years ago, at which time a joint test was begun by the Gypsy Oil Company, Oklahoma operating subsidiary of the Gulf Oil Corporation, with the Ohio Cities Gas Company; later the Sinclair interests took up thousands of acres and the Carter Oil Company, subsidiary of the Standard of New Jersey became active. About a year ago, C. J. Wrightsman, of Tulsa, was reported to have taken up New Mexico acreage and more recently blocks have found their way into the hands of the Sun Company, the New Domain Oil Company (South Penn) and others, among the first in that territory having been the Toltec Oil Company, closely identified with the H. M. Byllesby interests of Chicago.

Geological Conditions

All geological conditions that can be determined in advance of actual drilling are considered favorable by persons who have made investigations of the eastern New Mexico territory, and Mr. Matteson, who has just returned from a detailed survey of 50,000 acres and who had previously made other surveys, regards conditions as "strongly encouraging." This, he says, applies specifically to eastern New Mexico and more particularly to Roosevelt, Curry, Quay, eastern San Miguel and Union counties.

Thruout eastern New Mexico, traversing the counties mentioned, there is a well defined uplift, extending about north 15, east-south 15 west. This uplift is traversed by numerous cross folds, bearing south 45 to 70 degree west, north 45 tot 70 degrees east, and these cross folds offer favorable conditions, according to Mr. Matteson, for the accumulation of oil.

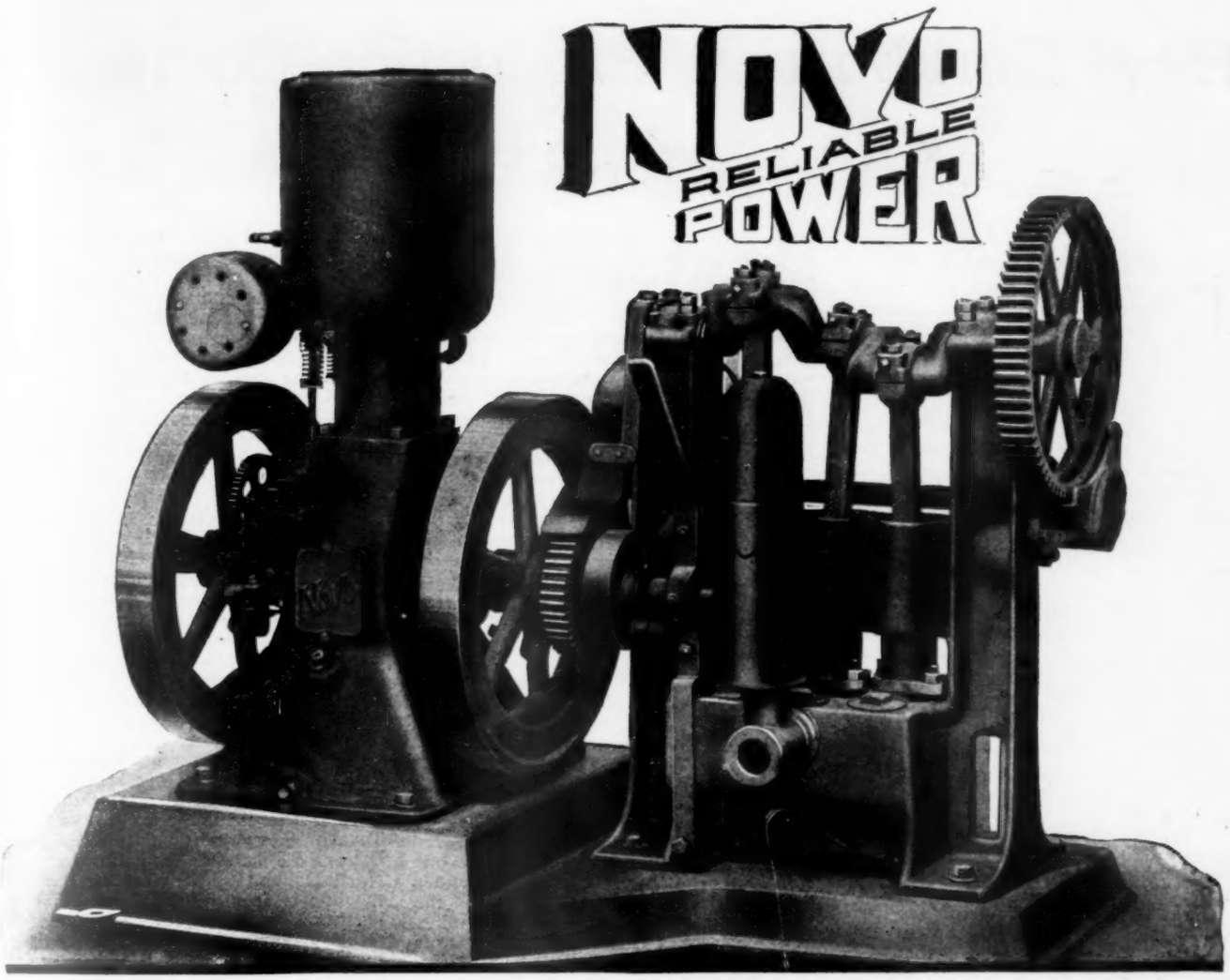
Conditions exposed at the surface in this territory are of Triassic and Jurassic age, largely. North of Tucumcari, massive resistant sandstones of Jurassic age form a cap rack which extends over several hundred miles of territory and give rise to a very pronounced mountainous and mesa-like topography.

In the counties mentioned, especially in the vicinity of the Texas-New Mexico boundary line and westward for a distance of at least 50 miles there is little or no evidence of granite intrusions. It is probable, according to geologists, that the Pennsylvanian formations will be reached in this vicinity at a depth of between 2,500 and 3,000 feet. The McGee test, now drilling 12 miles south of Tucumcari, reported lime at about 2,600 feet, but the drillers have not been able to state definitely that they had passed out of the Permian into the Pennsylvanian formation at this depth.

The magnitude of this north-south uplift has brought the Pennsylvanian series much nearer the surface than to the eastward, according to geologists. Where the Pennsylvanian outcrops come to the surface about 150 miles or so west of the Texas-New Mexico boundary line, a study of the section shows a 50-foot and a 100-foot sand of average porosity. Below this 100-foot sand a shale has been found in several places, which on heating, yields considerable oil.

In the vicinity of Santa Rosa, a sandstone is noted that is saturated with asphaltic material. This sandstone is part of the Santa Rosa sand of Permian age. The volume and extent of asphaltic saturation indicates to Mr. Matteson a former prolific source of supply.

Another part of New Mexico that is receiving considerable attention is the Tularosa Basin, where everal tests now are being drilled, and other locations are known to be contemplated.



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How Burkburnett Production Compares With Pipeline Facilities

Staff Special

WICHITA FALLS, TEX., Nov. 9

THE amazing abandon with which indiscriminate drilling was practiced to bring about the present crude oil congestion at Burkburnett is shown in figures on drilling operations for the greater Wichita Falls district (sand country development) over a period of six months ended with October 1. Figures now available for the first time show that the general district had in that period 724 completions with initial production estimated at 357,644 barrels. The greater part of this production comes from the so-called northwest extension to the Burkburnett pool, where the Burk-Waggoner discovery well came in the latter part of April, and almost all the remainder from the townsite wells or the Burkburnett old (shallow) pool.

Probably 300,000 barrels, estimated initial production, many of the wells having been shut down on top of the pay for want of facilities, may be credited to the northwest extension in that period. In October, there was a slackening down of operations that cannot be shown with exact figures at this time, but probably not more than a hundred additional wells reached the top of the pay, with potential production based on initial maximum estimates of say 80,000 barrels.

Thus, considering October on the basis of estimates only, it would appear that within the last seven months, some 825 wells completed in the greater Wichita Falls district, and most of these, as pointed out previously, were in one division or another of the Burkburnett field, had possible maximum production of some 425,000 barrels, combined.

There were estimated to be 150 wells on top of the pay ready to be drilled in, October 15, according to information gathered from field sources, with additional wells augumenting this number in the last two weeks of the month. These figures take into consideration, wells in the northwest extension that had been previously completed.

It must not be considered, however, that the approximately 425,000 barrels combined initial production estimated for the seven months' period represents anything like the present potential production of the territory for the reason that wells shut down on top of the pay or pinched in so that they were allowed to make only a small part of their possible high flush flow would give up less than 40 per cent of their original possible production when opened up under present conditions.

With the townsite pool still holding up to roundly 20,000 barrels daily production, the older shallow (800-foot) pool making roughly 9,500 barrels and the northwest extension showing pipe line runs of less than 70,000 barrels, the remainder of the latter division must necessarily show a cutting off of production from original estimates that would be amazing were it possible to open up all the wells to their capacity and handle this production were facilities present for so doing.

Wells that originally were estimated good for 1,500 to 2,000 barrels, high flush production, have been opened up in some instances sufficiently to gain an idea of their present possibilities, and they have generally shown good for only 600 to 800 barrels under present conditions, accordingly as their initial maximum possibilities were larger or smaller than, say 1,500 barrels. Still, it is conservative to say that the greater Wichita Falls district, which also includes approximately 10,500 barrels settled production at Electra; roughly 1,100 barrels at Petrolia and, some 1,500 barrels combined production at Iowa Park, Holliday and the other small pools, would be in excess of 200,000 barrels daily, possibly 225,000 barrels, were it possible to handle.

Figures showing the number of completions and their estimated combined production since April and up to October 1, follow:

Month.	No. Wells.	Combined Initial Prod.
April	87	19,754
May	110	16,701
June	146	50,327
July	116	49,160
August	132	123,193
September	133	91,509
Six months	724	357,509

It will be remembered that only one well in the northwest extension territory was completed in April. That was the Burk-Waggoner Oil Company's No. 1 Waggoner, on a 60-acre tract afterwards taken over by the Ryan Petroleum Company, which now operates it. There were less than a dozen May completions in the northwest extension, two or three which found grief in the form of fires that ruined the wells, and it was not until June that the intensive development of this division reached sufficient headway for completions to glut the pipe lines and bring about congestion in the face of the breakdown that then became apparent as affecting the government controlled railroads serving this light oil territory.

From June on until the present time, a majority of the completions of the Wichita Falls district have been in the northwest extension to the Burkburnett pool, so that a reference to the accompanying figures, together with a due regard to operating conditions, will give an idea of the present situation.

General Pipe Line Situation

Altho pipe lines under construction will give some relief to the congestion when completed, it is only the major carriers and such short lines as reach across the Red river boundary into Oklahoma to better railroad facilities that may be expected to provide considerable relief, for the reason that unloading racks on the Texas side are hampered by the lack of railroad "sympathy" that came with the breakdown.

The 6-inch line of the Gulf Pipeline Company from Fort Worth to Burkburnett has been constructed to its crossing of the Wichita river, where the heavy and consistent rains of the last six weeks have made crossing so difficult that it is not even possible to guess how soon the steep grade can be taken care of and the carrier completed. A pumping station near Bowie has still to be constructed, and the line can hardly be running oil before December. For the present, it will be possible to construct only one pumping station for the 115-mile line, so that even when it begins operation it will be possible to handle only 6,000 barrels daily, against the possible 12,000-barrel capacity of a 6-inch line.

When the Empire Pipeline Company and the Texas Company ran against a snag in obtaining materials for their two 8-inch lines, capable of handling 20,000 barrels daily each, to Healdton, Okla., they combined resources and constructed one 8-inch carrier. This line has been completed to Waurika, where the movement of oil is limited to loading rack facilities so far provided by the Rock Island railroad, the carrier not having been finished to Healdton, where it will have trunk line connections. Similarly, the installation of pumps on the Sinclair 8-inch line to its Healdton trunk line connection will not allow operation of this carrier for a month or more.

The Texas Company has had for a long time, having been an operator for years in the old Electra fields, a 6-inch line from Burkburnett thru Electra to its Gates, Texas, refinery and trunk line connection. It has a 6-8-inch line from Burkburnett to North Dallas (Gates). The 8-inch part of the line is from Wichita Falls to Burkburnett. Were its Healdton 8-inch constructed alone, instead of jointly with the Empire, the Texas Company's total facilities would amount to 50,000 barrels capacity daily.

Magnolia Petroleum Company pipe line facilities consist of 140 miles of 8-inch line from Burkburnett to Fort Worth, capable of handling 20,000 barrels daily. It has a 6-inch gathering line system from the northwest extension at Burkburnett to loading racks for tank car shipments at Electra, and a 6-inch line from the northwest extension to Burkburnett. As in the case of the Texas Company, it has been possible for the Magnolia to handle more crude than outgoing lines would permit, for the reason that its greater facilities within the field would permit the running of oil to tank farms within the greater Wichita Falls district, but the pipe lines serve the entire general territory, therefore limiting partially the amount that may be taken from Burkburnett, which division alone shows congestion.

All other pipe lines, which are short-line carriers, either to loading racks for tank car shipments or to refineries within the district, or more or less limited by the railroad situation. As the transportation breakdown on the federal controlled railroads affects the movement of refined oils as well as crude, the filling up of storage, shutting off the running of plant to only a small part of their charging capacity, a consequence is that they also are limited in the amount of crude that can be absorbed. Therefore, it remains for the railroad situation to be cleared up and the interstate pipe lines to be completed before considerable relief may be expected.

Some of the short lines crossing Red river into Oklahoma can give partial

(Continued on Page 82)

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(Continued from Page 78)

relief, as, for instance, the Burk-Lawton Pipeline Company, taken over recently from the Producer's and Refiner's Corporation, which is also running to part capacity to loading racks far enough away on the Oklahoma side to avoid the worst of the railroad tie-up. But there are other short lines across the river to such points as Devol, where the congestion exists to much the same extent as it does on the Texas side. Under these conditions, the twenty-two short lines, either to loading racks or local refineries, must remain hampered as to what they can do to relieve congestion.

Division of Facilities

Facilities of short lines may be summed up briefly as follows:

To loading racks for tank car shipments:

Humble Pipeline Company, 4-inch, part of line doubled, with gathering systems and storage, capacity 10,000 barrels, Burkburnett and northwest extension to Iowa Park.

T. & B. Pipeline Company, 4-inch, from Burkburnett and northwest extension to Wichita Falls.

Southern Oil Corporation, 4-inch, Burkburnett to Walters, Okla., with loading racks at Devol and Walters.

Woodburn Oil Corporation, 4-inch, northwest extension to Devol.

Western Oil Corporation, 4-inch, northwest extension to Burkburnett.

Noble Oil & Gas Company, 3-inch, northwest extension to Burkburnett.

Elliott, Jones & Company, 4-inch northwest extension to Burkburnett.

Hapgood, Brown & Parks, 4-inch, northwest extension to Burkburnett.

Mid-Co Petroleum Company, 6-inch, from northwest extension to Lawton, Okla.

Newton-Maer Pipeline Company, 6-inch, from northwest extension to Devol.

Livingston Oil Corporation, 4-inch, northwest extension to Devol.

Oklahoma Petroleum & Gasoline Company, 4-inch, Burkburnett to Devol.

J. A. Johnson Pipeline Company, 6-inch, Burkburnett to Devol.

Lines to refineries within the general Wichita Falls district for use in charging stills at plants:

Constantin Refining Company, 4-inch, Burkburnett to Devol.

Texhoma Oil & Refining Company, 4-inch, northwest extension thru Burkburnett shallow field to Wichita Falls.

Lone Star Refining Company, 5-inch, Burkburnett to Wichita Falls.

American Refining Company, 4-inch, northwest extension to Wichita Falls.

Victor Pipeline Company, 4-inch, northwest extension to Burkburnett.

Red River Pipeline Company, 6-inch, northwest extension to Southwestern Producing & Refining Company plant at Wichita Falls.

New Era Pipeline Company, 6-inch, northwest extension to New Era plant at Iowa Park.

Panhandle Refining Company, 6-inch, to Wichita Falls plant.

Burkburnett Refining Company, 4-inch, to Burkburnett plant, etc.

Crude Runs From Burkburnett

A statement showing the taking of crude from the Burkburnett field by various car-

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riers, both interstate pipe lines and short lines, as of October 15, follows:

Carrier	Daily Avg. for Week
Magnolia Petroleum Company	14,130
Texas Company	16,879
Burkburnett Refining Company	418
Western Oil Corporation	3,465
Panhandle Refining Company	1,730
T. & B. Pipeline Company	696
Gulf Pipeline Company	3,556
Crude Oil Marketing Company	2,121
Humble Pipeline Company	2,882
Hapgood, Brown & Parks	354
North American Refining Company	1,113
Constantin Refining Company	1,357
Burk-Lawton Pipeline Company	2,357
American Refining Company	490
Elliott Jones & Company	1,348
Empire Pipeline Company	830
Southern Oil Corporation	7,909
Arkansas City Pipeline Company	586
Waggoner Refining Company	496
Evans-Thwing Refining Company	1,758
Security Refining Company	79
Texhoma Oil & Refining Company	1,178
Oklahoma Petroleum & Gasoline Company	1,301
Johnson Pipeline Company	1,609
Sinclair Gulf Pipeline Company	132
White Eagle Refining Company	160
Interstate Pipeline Company	157
Paragon Oil Company	643
Lone Star Refining Company	1,330
Fuel used, estimated	2,500
Total	71,170

Pipe Line Construction At High Tide Despite Acute Pipe Shortage

Staff Special

TULSA, OKLA., Nov. 9.—Pipe line construction work is at high tide in the Mid-Continent field, in spite of the fact that the problem of getting pipe is getting more serious every day. Reports from Texas are that the pipe shortage there is being felt even more than it is in the Oklahoma and Kansas fields.

The pipe brokers again have their ads flaring on the oil pages of various papers, and the business is thriving for the broker who happens to have a supply of the most popular sizes on hand. The big companies, however, are managing to secure enough of the tubular product to fill their needs, and much building is therefore in progress.

The Oklahoma Natural Gas Company is finishing up a gas pipe line from Cement, in Caddo county, Okla., to the Walters field, in Cotton county, having about seven miles more to lay. It is said that there is in the neighborhood of 100,000,000 feet of gas at Walters that will be available for the line, which runs from Cement to Oklahoma City, so the Oklahoma capital should not want for gas during the coming cold season. Braden & Jones are the contractors.

The Hines Oil & Gas Company, of Oklahoma City, has secured right-of-way for a pipe line to be built from Devol, in Cotton county, Okla., to the northwest extension of the Burkburnett pool. The site for a loading rack at Devol has been purchased, and a contract made for a railroad siding. The Hines company is capitalized at $300,000.

The Sinclair Consolidated pipe line which is of 8-inch diameter, being built from Healdton to Burkburnett, is just about completed, about six miles yet being necessary to lay before connections with the Burk pool is made. Bad weather has interfered with work, but some progress is reported and it should soon be in operation.

The Sinclair people are looping their present line from Healdton to Cushing, with 8-inch pipe, to handle the additional oil which will be secured from Burkburnett, and about 75 miles of this line have been laid, and it is expected that it will be in operation by December 1.

The joint 8-inch line of the Texas Company and the Empire Pipe Line Company, from Waurika, Okla., to Burkburnett, is now running oil. Oil is loaded into tank cars at Waurika for shipment to northern points. Fifteen miles of pipe have been laid from Waurika to Healdton, and it is expected that this part of the line will be completed by December 1, giving both concerns a thru line from Healdton to Burkburnett, the same as the Sinclair people.

Over 100 miles of pipe line are now under construction or surveys have have been made for them by the pipe line department of the Kay County Gas Company and Marland Refining Company. The 4-inch line of the Kay County Gas Company from Ponca City, Okla., to the producing property of of the Marland Refining Company, at Quay, Okla., has been completed to a point six miles east of Burbank, in Osage county, and is being laid on south. Surveys are being made for a 4-inch line to be built from the proposed pumping station six miles east of Burbank, to Winona, Osage county, Okla., from which point production from leases bought at the last Osage sale will be run, and a survey will be made for a 3-inch line from the Min-Kah-She allotment, Osage county, to the Quay 4-inch line at a point 13 miles west of Hominy. These two lines will run a large part of the company's Osage county production. Eighty acres of land have been purchased at Winona, for a pumping station site. The station there will have a daily capacity of 5,000 barrels.

A pumping station will be built at Quay, to boost the 1,000 barrels daily production there to the pumping station at Burbank. The station at the latter place will have a 6,000-barrel daily capacity and will be the central gathering point for all the oil lines of the Marland interests in the Osage.

The 8-inch gas pipe line from Burbank into Kansas will soon be ready to carry gas, as will also the 6-inch line from Newkirk, in Kay county, north to the junction point with the line into Kansas. The following are the lengths of the Marland lines: Ponca City-Quay line, 64-miles; Burbank-Winona line, 19 miles; 3-inch line to

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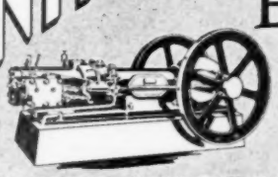

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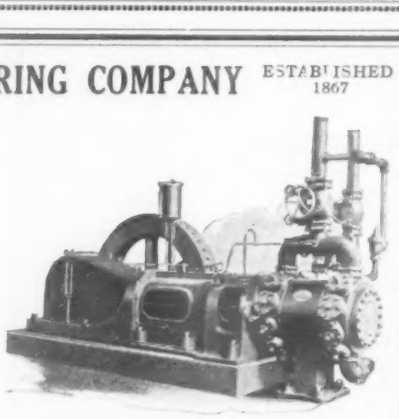

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Min-Kah-She allotment, 13 miles; 8-inch gas line, 30 miles; and the 6-inch line, 10 miles.

The Midco Petroleum Company is receiving pipe for construction of a 4-inch line to be built from Winona, in Osage county, to the Billings field, in Noble county. Work of laying the pipe and connecting of it will soon be started.

Sapulpa Refining Company has completed 14 miles of its 4-inch line under construction from its refinery at Sapulpa to the Beggs field, where it owns much production. This line is expected to be completed by December 1, bad weather having caused a delay in construction work.

Completion of the two pumping stations along the new 38-mile line of the Producers & Refiners' Corporation just completed from the Beggs field to the company's West Tulsa refinery, has not yet been made, but 4,500 barrels of oil is being pushed thru it, and a couple of weeks more should see it running to full capacity.

Leaves Roxana For Marland Refining Co.

PONCA CITY, Nov. 9.—Earl Oliver, formerly with the Roxana Petroleum Company, with headquarters at Tulsa, has taken the position of assistant to President E. W. Marland, of the Marland Refining Company.

For the past year and a half Mr. Oliver had been head of the land department with the Roxana.

His experience in the oil business dates back to his boyhood days when he started in the Pennsylvania fields as roustabout, serving later as pumper, lease superintendent, tool dresser, driller, in all capacities in the producing and drilling ends of the business.

Oliver rounded out his experience in executive positions following his graduation from college. His work in the last few years has been that of investigation and valuation of oil properties in the United States and foreign countries.

TULSA, OKLA., Nov. 9.—There has been some talk among oil men regarding the purchase of the 1,500-barrel refinery of the Superior Refining Company, at Covington, by the Marland Refining Company, and Superintendent W. D. Rial, of the refinery, has written an explanation of the advantage to Marland resulting from the purchase. His letter follows:

"Before purchasing this plant, it was either necessary to sell the Garber crude, losing the profit made in the manufactured products, or ship the crude to the refinery at Ponca City by cars, and by so doing, the freight rate offset the profit made in the manufactured products. Furthermore, the company's production in the Ponca field exceeded the capacity of the Ponca City refinery, making necessary the sale of Garber crude oil. Consequently, in order to derive the profits from manufactured products, it was necessary to purchase a refinery as the company had its own pipe line to Covington for loading cars, the logical place for a refinery was at Covington."

WHAT'S WHAT - IN CHICAGO - WHO'S WHO

CHICAGO, Nov. 8.—J. A. Anderson, of Anderson & Gustafson, accompanied by L. A. Stewart, of the lubricating department, have been spending the week in the east on business. F. E. Spencer, general manager of the firm, found time last Saturday to attend the Wisconsin-Minnesota football game at Madison, Wis.

L. J. Phillips, of the Keystone Oil & Manufacturing Company, who has been on a trip thru the south for the last month or so, returned early this week to the local office, and after spending several days here immediately returned to Louisiana and other southern states, where he intends to remain until the first of the year on a buying trip. Kenneth Huszagh is on a trip thru Ohio and Michigan territory looking into business prospects there. W. C. Pearl spent several days in Muskegon, Mich., last week, in connection with the death of his father-in-law, who lost his life in the foundering of a lake vessel there during a gale.

Hugh Stoddard, of the Stoddard Oil Company, is getting well established in his new office at 30 N. LaSalle street, and is able to report that plenty of business is offered to keep him exceedingly busy.

The Commerce Petroleum Company, which recently moved its offices from the ninth floor of the Webster building here to 1003 Daniel building, Tulsa, in order to concentrate its activities there, is still receiving a few inquiries here, it seeming that oil men have not been acquainted with the fact that the offices have been removed. President George F. Brigham and vice President R. W. Patterson, of the company, both make their headquarters in Tulsa.

H. P. Downs, who recently opened offices here for the Universal Petroleum Company has taken an assistant who will aid in sales of the company's products. The new man is A. H. Greenewald, who was formerly with the Keystone Oil & Manufacturing Company in a sales capacity.

The Cataract Refining & Manufacturing Company, according to Frank Kuper, has been exceedingly busy of late, orders being received necessitating the operation of the plant here to capacity. Lubricating oils and greases are moving freely tho a slightly deterrent effect is felt because of both the steel and coal strikes, to which industries considerable of the products of the company goes.

A new addition to the sales force of the American Petroleum Products Company is Mr. Butts, formerly with the Sinclair Refining Company, in Chicago, who will help augment the sales of the company under the direction of I. B. Connor. Mr. Butts will work in conjunction with F. M. Cooper in Chicago territory. A. B. Hart, of the sales force, returned late last week from a trip thru his territory and left Monday of this week for a more extensive sales trip.

A. F. Garrett, sales manager of the Oklahoma Petroleum Gasoline Company, and also the Traverse Oil Corporation, has been spending the week in southern Illinois territory, looking after business prospects and expecting to return next Monday.

The Wadhams Oil Company and the Inter Ocean Refining Company, affiliated organizations which have maintained offices for some time at suite 557, McCormick building, have practically become re-established in its quarters at suite 455 of the same building to which they removed a short time ago. Roy Alwood, local representative of the Wadhams Company, has been out of town all week superintending removal of his household goods from his home in Ohio to Chicago. President G. L. Woodard, of Kansas City, of the Inter Ocean Refining Company, has been spending several days here this week.

J. P. Phelan, of the Indiahoma Refining Company, of St. Louis, spent several days here this week with business associates.

Two additions to the sales force of the Transcontinental Oil Corporation are E. L. Willis and F. J. Drick, both formerly of Tulsa, having had considerable experience in the oil business. Mr. Willis will make his headquarters at the Sioux City office, tho he will be under the direction of C. S. Hall, manager of the Chicago territory.

Ben J. Skinner, who for more than a year has been in charge of the Chicago office of the Riley Bros. Oil Corporation, has severed his connection with that concern to take charge of the local office of the Marland Refining Company, of Ponca City. His successor for the Riley Bros. Company has not been announced.

L. V. Nicholas, of the L. V. Nicholas Oil Company, Omaha, was among the visitors on the local market during the week.

Henry Wenger, of the Wenger-Armstrong Company, returned this week from a trip to the east, including Pittsburgh, where the company has opened a new office at 247 Union Arcade. Edward Reiser will be in charge of the new office and will be assisted by J. H. McElwain, both of whom have had extensive experience in the petroleum industry in the east.

Colonel E. M. Wilson, of the Lakeside Petroleum Company, has been in the east during the last week looking after some important business affairs there. Owen T. Hulse, of the company's sales force, has been spending a week in Illinois and Indiana territory, being expected back today.

Carl O. Beroth, president of the Acme Petroleum Company, left early in the week for Oklahoma and Texas in the interests of the company, being expected to return early next week.

Frank Brown and F. B. Wilcox, president and secretary-treasurer, respectively, of the Lone Star Refining Company, of Wichita Falls, were among the visitors on the local market this week.

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REFINERY, TANK WAGON MARKETS

Pennsylvania Crude Advances To $4.50

AN advance in the posted price of Pennsylvania crude 25 cents a barrel, bringing the price to $4.50, effective November 7, was the outstanding feature of the week. At the end of the week prices of cylinder stocks at eastern refining centers were going up practically at the rate of a cent a day. Whether the crude supply available for the eastern refiners will be increased as a result of the advance in price is regarded as doubtful by the men in closest touch with the situation, the general belief being that the tendency of the producers will be to hold back a good part of their crude for the $5 price which which is expected by the first of the year.

Mid-Continent Refiners In Serious Situation

The increasing weakness of the gasoline market is having a severe effect on the Oklahoma, Kansas and Texas refiners, particularly those operating on Burkburnett crude. Demand is strong for kerosene and fuel oil at prices that yield a decent margin of profit, but the plants are at a loss to dispose of their gasoline, which constitutes around 38 per cent of their recovery from the crude charged thru their stills. A return by the Standard to its previous policy of supplying its domestic filling stations largely with products bought from the Independent refiners and selling their own products in export trade is the only solution of the problem that can be seen by students of the situation.

Rules For Fuel Oil Storage Adopted in New York

The rules governing the storage of fuel oil in New York City were formally adopted November 6 by the New York Board of Standards and Appeals. While the rules contain some provisions that are unacceptable to the industry as a whole, some revisions have been made from the draft of October 29, in accordance with the recommendations of the inflammable liquids committee of the National Fire Protection Association and as a whole the rules are such as not disastrously to affect the development of fuel oil burning. Protests against some of the provisions are to be registered by the American Petroleum Institute and General Secretary R. L. Welch has invited the oil industry generally to submit statements and facts as to whether the rules are fair and reasonable.

Cylinder Stocks Set New Record

By Special Correspondent

PITTSBURGH, Nov. 10.—Cylinder stocks during the week reached a record price in the history of the eastern refining industry, as far as the memory of veteran refiners runs back, and at the end of the week some grades were advancing at the rate of about a cent a day as demand increased and output diminished. Neutrals followed closely in the upward path of the cylinder stocks.

With the posted price of Pennsylvania crude advanced 25 cents to $4.50 a barrel, effective November 7, refiners questioned whether more of the crude would be released to the refineries or whether the producers would continue to hold back a good percentage of their production, as they have been doing for some time, in expectation of further advances that will carry the posted price to $5, which is expected by many to be reached by the first of the new year.

The general opinion was that the latter will be the case and that the refiners will continue to operate far below capacity with a resulting mounting of the prices of Pennsylvania products, particularly cylinder stocks and neutrals.

Demand for gasoline was considerably weaker during the past week than the previous week, the coming of cold weather of course having a tendency to restrict motoring and consequently gasoline consumption. The high gravity products suffered less than the heavier grades.

Kerosene was also somewhat weaker altho there was not much change in price. Fuel oil, as for several weeks past, was a star performer, stiffening to as high as 7½ cents a gallon with little of it being made at the eastern plants. Wax also continued to show the strength that began to develop last week.

Fuel Oil Stronger And Limit Not In Sight

Staff Special

TULSA, OKLA., Nov. 10.—The steady strengthening of fuel oil has been the most notable and pleasing happening in the market for refined products during the past week. Fuel oil in buyers' cars is now bringing $1 per barrel, and the limit seems to have not yet been reached. An increased buying campaign with prospects for still further demand is the cause of the strength in this product.

Gasoline, like last week, is still going off, and prices are lower than for some time, prices on some grades being off almost a cent a gallon compared with last week. Kerosene is down to what refiners consider rock bottom, one refiner having sold a few cars for 9¼ cents f. o. b refinery.

The dope is being given out strong by some that the kerosene market is going to advance, and that within the next week, but what is thought to be the source of information has been run down, and it is denied that any such dope has been handed out there. There is but one thing to do and that is to wait and wish for the better, and in the meantime the refiners here are not exactly in love with the situation .

Fuel Oil Gaining In Chicago Market

CHICAGO, Nov. 10.—With considerable gratification the local marketers continue to note the climbing prices on fuel oil and gas oil. The uncertainty of the coal situation is chiefly responsible for this. The local quotations on fuel oil have jumped a number of points and now average $1.35 and better per barrel, with indications of still further advances. Gas oil which sold about a month ago for slightly over 2½ cents a gallon, is quoted this week at 4 cents to 4¼ cents, and on this product indications are of higher quotations.

The decreased demand for gasoline, aided by the extraordinary supplies in this section, have tended to make the market for gasoline an unknown quantity with the result that prices are characterized as very weak.

Kerosene also is weaker, altho this product is not in such large supply. Lubricating oils and greases continue to maintain their normal activity, altho here and there reports are that the steel strike and the coal strike have tended slightly to reduce the demand for these products.

Foreign Opportunities

In the Commerce Reports of the past week, issued by the Bureau of Foreign and Domestic Commerce, the following trade opportunities appear of interest to oil men seeking foreign markets. In writing for further information, address the Bureau at Washington, D. C., and refer to the opportunity by the number given. Inquiry concerning each opportunity should be made on a separate sheet of paper:

31137—An agency or consignment is desired by a man in Belgium for industrial oils, gasoline and other petroleum products. Quotations should be given c. i. f. Antwerp. Correspondence should be in French. References.

31190—The general purchasing agent of a firm in Spain desires to purchase and secure an agency for iron piping, belting for power transmission, greases and mineral oils, electrical measuring instruments and gas motors. Quotations should be given c. i. f. Spanish port. Correspondence should be in Spanish. Reference.

31207—A company in Greece desires to secure agencies from manufacturers for the sale of iron concrete reinforcement bars; structural and shipbuilding iron and steel; plain and galvanized soft - steel sheets; corrugated-iron sheets; steel, iron and copper pipes; internal-combustion engines; Diesel and semi-Diesel engines, principally of small power; 2 to 6 horsepower engines suitable for well pumping, also 10 to 25 horsepower engines for small flour mills, etc.; marine engines, 100 to 300 horsepower; windmill pumps; cylinder flour mill of from 5 to 10 tons daily output for country dstricts; electric motors and other electric machinery and appliances, telephones, etc.; plain and insulated electric cables and wires; and steel ropes and wires. References.

Start In Marketing Business In Kentucky

LOUISVILLE, KY., Nov. 10.—The States Oil Company, with an authorized capitalization of $50,000, par value of shares $100, has incorporated in Kentucky. The company announces that it will do a compounding and marketing business and will operate a string of filling stations and tank stations and a fleet of tank and stake trucks.

The officers of the company are: R. E. Gordon, president, also president of the Gordon-Miller Coal & Coke Company of Louisville; A. Mathis, vice president and general manager; Phil. J. Bohne, secretary and treasurer, now treasurer Lincoln Savings & Trust Company, Louisville.

Mr. Mathis has had many years experience as an organizer and marketer with the Gulf Refining Company, the Texas Company and the Sinclair Refining Company.

The company announces that it expects eventually to extend its scope of operations with the erection of an up-to-date refinery and cracking plant.

Refinery Markets, All Products

Following are the average market prices on the more important petroleum products in cents per gallon f. o. b. refinery in both Oklahoma and Pennsylvania. These are actual prices at which the bulk of each product is moving from the refineries at the present time. Anyone having knowledge of different prices which have obtained on any considerable quantity of any of the products mentioned will greatly favor us by advising us at once.

Prices effective Nov. 11,

GASOLINE AND NAPTHAS

Pennsylvania	Prices Nov, 11
54 Naptha	18-18¼
56 Naptha	18¾-19¼
58 Naptha	19¾-20
60 Straight-run gasoline	20-20¼
62 Straight-run gasoline	21¼-21½
64 Straight-run gasoline	23
68 Straight-run gasoline	24½-24¾
58-60 Blend, 450 end point	18½
60-62 Blend, 440 end point	19
62-64 Blend, 440 end point	19¼
64-66, 430-35 end point	19 ¾
68-70	20¼
Oklahoma	
50-52, 450 end point	15-15¼
52-54, 450 end point	15¼-15½
54-55, 450 end point	15¼-15½
56-57, 450 end point	15½-15¾
58-59, 430-440 end point	16-16½
60-61, 400 end point	17¼-17½
62-63, 375 end point	18½-19
64-66, 365 end point	20½-21
Navy Spec. 140 I. b. p.-428 e. p.	16½-16¾
80-84 Raw Casinghead	-22¾23
68-70 Blend, 430-435 end point	18¾-19
66-68 Blend, 435 end point	18¾
60-62 Blend, 435 end point	17-17½
58-60 Blend, 440-450 end point	16
74-76 Absorption Gasoline	21-22
Texas	
50-52, 440 end point	13
52-54, 420 end point	13¼
56-58, 450 end point	15
58-60, 440 end point	15¼-15½
Navy specification	16
72-76 Casinghead	17½
82-86 Casinghead	19

BURNING OILS

Pennsylvania	
45 Water White	11¼-12
46 Water White	12¼
47 Water White	12¼-12¾
300 Burning Oil	9¾
Oklahoma	Prices Nov, 11
42-43	9¾-10
44-46	12
42-43 Distillate	9⅜ 9¾
Texas	
40-41 Water White	9
42-44 Water White	10
40-41 Distillate	7¾ 8

NEUTRAL OILS

Pennsylvania	
200 Vis. No. 3 Assoc. Filt	24¾-25
180 Vis. No. 3 Assoc. Filt	22½-22¾
150 Vis. No. 3 Assoc. Filt	19½-20
Oklahoma	
100 Vis. No. 2 Color	8¾-9
200 Vis. No. 3 Color	16½-16¾
160 Vis. No. 4 Color	15½
200 Vis. No. 4 Color	17¾-18
200 Vis. No. 5 Color	15¾-15½

CYLINDER STOCKS

Pennsylvania	
600 Steam Refined	27-28
650 Steam Refined	30-30½
635 Steam Refined	28
600 Flash	32-32½
600 Amber Filtered	32
600 Medium Filtered(D)	41
Cold Test Stocks (F F F light)	50
F F F dark	47

WAX

Pennsylvania	
122-124 White Crude Scale Wax, N. Y., lb.	5¼-5½
124-126 White Crude Scale Wax, N. Y., lb.	5¾-6
Oklahoma	
122-124 White Crude Scale Wax	3¾-4

FUEL OIL

Pennsylvania	
36-40 Fuel Oil	7-7½
Oklahoma	
32-36 Gas Oil	.03
24-26 Fuel Oil, per bbl., Cleveland delivery	.90-1.00
28-30 Fuel Oil, per bbl., Cleveland delivery	1.15
30-32 Fuel Oil, per bbl., Cleveland delivery	1.25
Fuel Oil, buyers' cars, bbl	1.00
Texas	
34-36 Gas Oil	3¼
32-34 Gas Oil	3
30-32 Gas Oil	2½
24-28 Fuel	95-1.05

Refiners' and Jobbers' Supplies

Following are the average market prices for the week on the principal materials used by refiners and jobbers, f. o. b. shippjng point as effective Nov 11, 1919.

Refiners' Supplies	Nov. 3	Nov. 11
Soda Ash	$2.50 cwt	$2.50 cwt
Silicate of Soda	2.00 cwt	2.00 cwt
Sal Soda	1.85 cwt	1.85 cwt
Caustic Soda, solid	4.00 cwt	4.00 cwt
Jobbers' Supplies		
Degras Oil	62c gal	62c gal
English Degras	10½c lb	9c lb
Domestic Degras	8½c lb	8½c lb
Chloride o Lime	2.75 cwt	2.75 cwt
Horse Oil	15c lb	15c lb
Lard Oil—		
Ex Winter Strained	$1.82 gal	$1.82 gal
No. 1	1.35 gal	1.35 gal
Extra	1.72 gal	1.72 gal
Extra No. 1	$1.42 gal	$1.42 gal
No. 2 Lard	1.30 gal	1.30 gal
Tallow Oil	1.77 gal	1.77 gal
Neatsfoot Oil—		
Pure	$1.77 gal	$1.77 gal
Extra	1.42 gal	1.42 gal
No. 1	1.35 gal	1.35 gal
Menhaden Fish Oil	1.35 gal	1.35 gal
Whale Oil	1.35 gal	1.35 gal
Soya Bean Oil	22½c lb	22½c lb
*Rosin Oil, 1st run	88c gal	88c gal
*Rosin Oil, 2nd run	90c gal	90c gal
Linseed Oil	1.78 gal	1.74 gal
**Turpentine	1.71¼ gal	1.56 gal
Pine Tar—		
Kiln Burnt Oil, bbls		$17.00
Retort Oil, bbls		18 00

*F. O. B. barrels, shipping point.
**Savannah, Ga., market.

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Now is the time to consider the fuel oil situation. You have every argument for the use of fuel oil versus coal, on your side,—the coal miners' strike—the coal shortage even if the strike is settled—economy—cleanliness—greater heat value—more easily handled—less labor—occupies less storage space—steam pressure is more easily controlled—and a number of others.

We have the fuel oil—all grades from low to high gravity and from any field you prefer.

We have tank cars—a large fleet of our own—and can ship you one car or a trainload.

We have the price, and it's right.

Just telephone or wire us at our expense, stating the grade, gravity and quantity you want. We will gladly quote on your requirements either for spot shipments or on contract.

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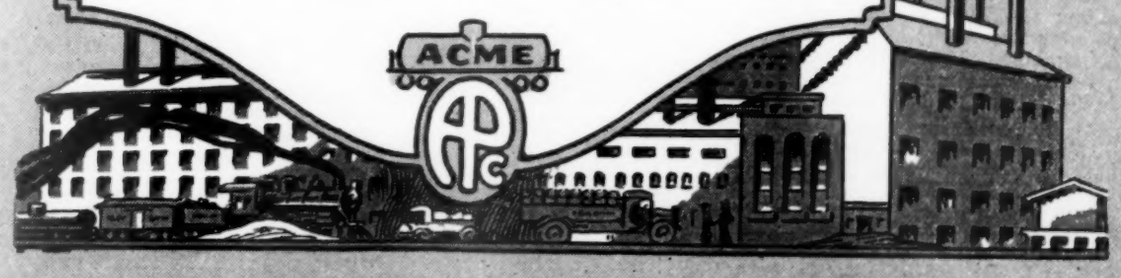
Chicago, Ill.
910 S. Michigan Ave.
Telephones-Harrison 377 378

Kansas City, Mo.
Security Building
Phones: Home Main 4800
Bell Grand 1800

Tulsa, Oklahoma
First Nat'l Bank Bldg.
Telephones: 8800 @ LD 78



Tankers Factor In Holding Export Trade

By Special Correspondent

NEW YORK, Nov. 10.—The relief from the general harbor freight tie-up by the collapse of the longshoreman's strike has been offset to a large extent by the embargo on foreign tonnage fuel bunkering at the local port. The oil trade, however, has been able to maintain a fairly active outlet, principally thru the advantage of the tanker fleet, altho the available bulk carriers are inadequate to fulfill the steadily increasing foreign trade necessities. The demand for fuel oil continues to develop on a scale that is causing quite a flurry in the market.

The export movement in this line is heavily handicapped by the tanker shortage and by the restriction in deliveries to tidewater. Some houses, however, are less keen about the fuel oil foreign trade, believing that domestic requirements are shaping up to an extent that may involve the eastern markets in more or less difficulty to satisfy.

The export demand for kerosene is of the same steady character, creating the greatest pressure upon tanker tonnage. The shipments are well scattered and there is indicated a general tendency on the part of foreign purchasers to keep a close line on the market for repeat orders. No further bulk shipments of kerosene to Germany have been noted, but with the resumption of this trade practically established, a steady outlet is believed to be assured as soon as shipping facilities warrant.

German marks have depreciated to a new low record, but Austrian kronen have reflected a firmer tendency. French and Italian exchange have sustained serious breaks, while sterling has been slightly weaker.

There have been no changes in petroleum export prices, and the market is on a nominally steady basis for kerosene and gasoline, the only products openly quoted.

Despite the stagnant market for general tonnage, owing to the embargo on coal for export, a fairly large petroleum charter has been closed, 1,897 tons, New York or Philadelphia, to a French Atlantic port, bulk shipment by a Norwegian steamer, at private terms. Steam tonnage rates, altho quotably steady, are likely to weaken under the restriction on coal shipments.

Total petroleum exports from New York for September marked a decline in volume from the August record, 49,049,926, against 50,922,913 gallons, but on the value comparison a gain is noted, $11,894,253, against $11,840,915. For September, 1918, the shipments amounted to 62,850,874 gallons ($12,309,468).

A detailed table will be found on page 96.

September, 1919, shipments by countries in gallons were:

Kerosene—Argentine, 3,139,580; Italy, 2,500,000; Netherlands, 1,650,000; China, 1,595,000; Brazil, 1,529,840; Persia, 1,325,000; England, 996,000; Belgium, 902,000; New Zealand, 900,480; Japan in China, 895,120; British South Africa,

(Continued on page 96.)

Crude Oil Situation In A Nutshell

Below is given the crude oil situation in this country in a nutshell, the figures used being those furnished by the U. S. Geological Survey. They apply to all fields east of the Rockies; California, which does not have the bearing on the situation of other producing districts in this country, being excluded. Figures are in barrels of 42 gallons:

	Marketed	Consumed	Stocks
August, 1919	25,199,000	28,904,000	104,186,000
July, 1919	25,185,000	19,443,000	107,891,000
August, 1918	20,249,000	22,675,000	108,578,000

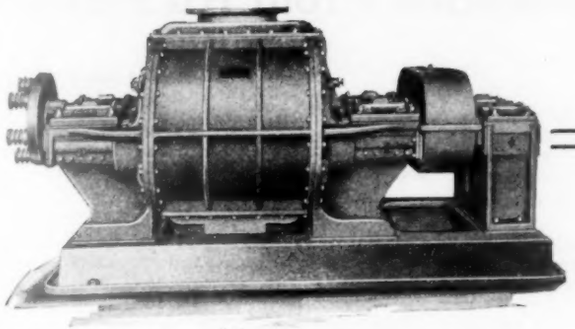
Crude stocks east of the Rockies were increased 4,392,000 barrels from August 31, 1918, to August 31, 1919; decreased 3,705,000 barrels during August, 1919; increased 5,742,000 barrels during July, 1919.

Tank Wagon, Service Station Markets

Standard Oil Company's service station and tank wagon quotations on gasoline and tank wagon price for kerosene in cents per gallon.

	Gasoline Tank Wagon Nov. 11	Gasoline Service Station Nov. 11	Oil Tank Wagon Nov. 11
EASTERN POINTS			
New York	24.5	26.5	16
Baltimore, Md.	22.5	24.5	14.5
Boston	25.5	27.5	17
Philadelphia	24.3	27	16
Newark, N. J.	22.5	24.5	14.5
Atlantic City, N. J.	22.5	24.5	14.5
Albany, N. Y.	25.5	27.5	17
Syracuse, N. Y.	25.5	27.5	17
Buffalo	23.5	25.5	16.5
Pittsburgh	24.3	27	16
Cleveland	25.5	25.5	14
Annapolis, Md.	23.5	25.5	15.5
Washington	22.5	24.5	15
Richmond, Va.	23	25	15.5
Danville, Va.	24	26	16.5
Roanoke, Va.	24.5	26.5	16.5
Petersburg, Va.	22.5	24.5	14.5
Burlington, Vt.	25.5	27.5	17
Charleston, W. Va.	23.5	25.5	15.5
Keyser, W. Va.	24	26	16
Parkersburg, W. Va.	22.5	24.5	14.5
Mt. Airy, N. C.	24.5	24.5	17
Salisbury	24.5	24.5	17
Hickory	24.5	24.5	17
Wheeling, W. Va.	22.5	24.5	14
Hartford, Conn.	24.5	26.5	16
Bridgeport, Conn.	24.5	26.5	16
New London, Conn.	25.5	27.5	16
Dover, Del.	24.3	27	16
Wilmington, Del.	24.3	27	16
Augusta, Me.	25.5	27.5	17
Portland, Me.	25.5	27.5	17
Providence, R. I.	25.5	27.5	17
MIDDLE WEST			
Chicago	21	23	14.5
St. Louis	20.5	23	14.4
East St. Louis	21.5	22.5	14.5
Omaha, Neb.	24.5	24.5	15.25
Crawford, Neb.	24	24	17
Kansas City	21.3	22.3	13.8
Topeka	22.7	22.7	14.2
Wichita	22.7	22.7	14.2
Peoria, Ill.	22	23	15.5
Detroit	22.8	23.8	15.8
Bay City	22.8	23.8	15.8
Indianapolis	22	23	15.5
Ft. Wayne, Ind.	22	23	15.5
Minneapolis	22	24	16
Pipestone, Minn.	22.6	24.6	15.8
La Crosse, Wis.	21.5	23.9	15.9
Milwaukee	22.1	23.1	15.3
Madison, Wis.	22.2	23.2	15.1
Fargo, S. Dak.	25.1	26.1	17.2
Sioux City, Ia.	21.9	22.9	15
Des Moines, Ia.	22	23	14.7
Keokuk	21.9	22.9	14.6
Bismarck, N. D.	27.2	28.2	19.2
SOUTHERN POINTS			
Birmingham, Ala.	23.5	25.5	15
Mobile, Ala.	22	24	14
Fort Smith, Ark.	23.5	25.5	14.5
Little Rock, Ark.	24	26	13.5
Texarkana, Ark.	24.5	26.5	14.5
Louisville, Ky.	24	24.5	16
Bowling Green	25	25.5	16
Atlanta, Ga.	23.5	25.5	16.5
Augusta, Ga.	25.5	27.5	16.5
Savannah, Ga.	22.5	24.5	15.5
New Orleans, La.	22	24	14
Shreveport, La.	22.5	22.5	13.5
Nashville, Tenn.	22.5	24.5	14.5
Memphis, Tenn.	22	22	13
Tampa, Fla.	25.5	23.5	14.5
Ft. Myers	25.5	27.5	15.5
Jackson, Miss.	23	23	13
Natchez, Miss.	25	25	13.5
Charleston, S. C.	23.5	23.5	14.5
Columbia, S. C.	24.5	24.5	16.5
ROCKY MOUNTAINS			
*Denver, Colo.	24	26	16.5
*Glenwood Spgs, Col.	27.5	29.5	20
*Pueblo, Col.	24	26	16.5
Casper, Wyo.	21.5	21.5	13.5
Basin, Wyo.	23	23	15
Cody, Wyo.	24.5	24.5	16.5
Lander, Wyo.	23.5	23.5	15.5
Cheyenne	24.5	26.5	16.5
Billings, Mont.	25.5	26.5	17.5
Butte, Mont.	27	28	19
Helena, Mont.	27	28	19
Miles City, Mont.	27	28	19
Great Falls, Mont.	27	28	19
Salt Lake City	26	28	18
Ogden, Utah	26	28	18
Boise, Idaho	27.5	29.5	19.5
FAR WEST			
San Francisco	21.5	21.5	12.5
Los Angeles	21.5	21.5	12.5
Portland, Ore.	23.5	23.5	13.5
Seattle, Wash.	22.5	22.5	13.5
Spokane, Wash.	26	26	17
Tacoma, Wash.	22.5	22.5	13.5
SOUTH WEST			
Oklahoma City	23.5	24.5	13.5
Bartlesville, Okla.	23	23	12
Tulsa	21.5	22.5	12.5
El Paso, Texas	23.5	25.5	25.5
Houston, Tex.	22.5	24.5	13.5
Galveston, Texas	24	26	16
Fort Worth	22.5	24.5	14.5

*Plus 1 cent per gallon state road tax.



For accurate results in refining processes, it is desirable to furnish an accurately measured volume of air (or gas) for agitating the oil. The pressure required will depend upon the depth of oil, pipe friction, and the violence of agitation required. In practice, the pressure is 4 lbs. to 10 lbs. per square inch.

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Gas Pumps—Catalog 63
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P. H. & F. M. Roots Company
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Chicago:
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Proposals For Gasoline, Oils and Greases

Sealed proposals will be received here until 10 a. m., December 1st, 1919, and then opened, for furnishing gasoline, kerosene, lubricating oils, fuel oil and greases required by Army during January, February and March, 1920. Further information on application.

Raw Materials and Paints Branch, Office of the Quartermaster General, Director of Purchase and Storage, Regular Supplies Division, Munitions Building, Washington, D. C.

(Continued from page 94.)

880,000; British India, 859,610; Japan, 850,292; France, 758,028; Turkey in Asia, 531,500; Dutch East Indies, 500,000; British West Africa, 491,440; Aden, 360,667; Chile, 311,000; French Africa, 137,400; Trinidad, 112,200; British Guiana, 107,336; other British West Indies, 60,786; Portuguese Africa, 43,500; Panama, 41,998; Cuba, 39,269; French West Indies, 28,500; Haiti, 21,500; Jamaica, 28,800; Venezuela, 14,820; San Domingo, 10,104; Dutch West Indies, 7,020; Guatemala, 6,250; Barbadoes, 5,300; Ecuador, 5,000; French Guiana, 4,700; Colombia, 4,330; Danish West Indies, 3,390; Belgian Kongo, 2,720; Peru, 2,220; Austria, 510.

Lubricating oil—England, 3,833,065; France, 1,258,889; Argentine, 504,021; China, 480,121; Italy, 487,092; Belgium, 461,938; Sweden, 370,317; Denmark, 360,425; Norway, 337,217; Hongkong, 296,163; Netherlands, 178,334; Uruguay, 163,500; Cuba, 136,887; British South Africa, 131,676; Scotland, 128,722; Japan, 122,031; New Zealand, 120,342; Straits Settlements, 113,518; Dutch East Indies, 112,580; Greece, 103,700; Brazil, 93,116; British India, 92,434; Spain, 78,635; Ireland, 72,700; Bulgaria, 61,100; Chile, 60,182; British Guiana, 48,723; Philippine Islands, 36,784; Iceland, 38,936; Switzerland, 23,050; Australia, 41,154; British West Africa, 19,629; Turkey in Asia, 18,464; Germany, 16,150; Panama, 15,021; Colombo, 13,064; Newfoundland, 10,250; Danish West Indies, 7,136, Trinidad, 6,483; British East Indies, 6,250; French East Indies, 4,880; Costa Rica, 4,380; French Africa, 4,912; Venezuela, 3,941; Aden, 2,854; Gibraltar, 2,750; Ecuador, 2,130; British East Africa, 1,820; Para, 2,412; Bermuda, 1,514; Barbadoes, 1,302; Russia in Asia, 1,234; Egypt, 1,256; Salvador, 1,187; Haiti, 1,444; French Guiana, 710; Jamaica, 823; Dutch Guiana, 540; Honduras, 566; Dutch West Indies, 445; Belgian Kongo, 370; Kautemala, 264.

Gasoline—France, 4,296,835; England, 1,263,387; Italy, 1,250,000; Brazil, 412,175; Argentine, 389,410; Japan, 380,000; Chile, 202,000; French Africa, 179,350; Sweden, 102,500; San Domingo, 97,300; Turkey in Europe, 95,000; Bulgaria, 95,000; British West Africa, 73,450; Greece, 44,000; French West Indies, 40,520; British Guiana, 39,956; Haiti, 31,055; Colombia, 21,871; Aden, 28,800; Ireland, 13,800; Trinidad, 5,300; China, 4,750; Belgian Kongo, 3,825; Portuguese Africa, 2,000; Belgium, 950; Guatemala, 600; French Guiana, 237; Greece, 44,000.

Other napthas—Argentine, 1,583,350; Chile, 950,000; New Zealand, 571,400; Uruguay, 366,500; Belgium, 315,000; British South Africa, 287,520; Australia, 178,000; British West Africa, 154,176; Japan in China, 118,750; Finland, 85,000; Cuba, 1,000; Panama, 300; Venezuela, 100.

Fuel and gas oil—Netherlands, 2,272,854; Belgium, 205,000; Brazil, 12,000; British Guiana, 11,250; Spain, 8,000; French West Indies, 7,600; Barbadoes, 5,000; Spanish Africa, 5,000; San Domingo, 1,000; England, 502.

Crude oil—San Domingo, 104.

Crude Oil Quotations From All Fields

Crude Prices

Quoted by the predominating pipe line companies in each field. All prices are at the well in barrels of 42 gallons.

Feb. 21 the price of Corsicana heavy was reduced 25 cents a barrel to $1.05, and Healdton crude was reduced 25 cents to $1.20.

March 22d all grades of Gulf Coast crudes were marked down 25 cents to $1.00. Spindletop was reduced 30 cents to $1.00. Caddo heavy was reduced 25 cents to 75 cents.

May 1 Columbia Gulf Coast crude from the new West Columbia pool near Houston, Texas, was cut 25 cents to 75 cents.

June 10 the Standard of California advanced the price of 37 to 37.9 degrees gravity crude in all fields from $1.57 a barrel to $1.63. Five cents a barrel additional will be paid for each degree above 37. Quotations on lower gravity crudes are unchanged.

Sept. 2 the price of Pennsylvania crude advanced 25 cents to $4.25 a barrel and Cabell, Corning and Somerset grades advanced 10 cents a barrel.

North and South Lima, Wooster, Indiana, Illinois and Princeton advanced 10 cents Sept. 8.

Nov. 7 Pennsylvania crude was increased 25 cents to $4.50 a barrel. Cabell, Corning and Somerset were increased 15 cents to $3.02, $3.10 and $2.85 respectively. Ragland was increased 10 cents to $1.35.

EASTERN FIELDS

Prices

	Nov, 11 1919	Jan. 1, 1919	Jan. 1, 1918
Pennsylvania	$4.50	$4.00	$3.75
Cabell	3.02	2.77	2.73
Wooster, O.	2.95	2.58	2.38
Corning	3.05	2.85	2.80
North Lima	2.48	2.38	2.08
South Lima	2.48	2.38	2.08
Indiana	2.38	2.28	1.98
Princeton	2.52	2.42	2.12
Somerset	2.85	2.60	2.55
Ragland	1.35	1.25	1.20
Illinois	2.52	2.42	2.12
Plymouth	2.33	2.33	2.03
Canadian Petrolia	2.78	2.78	2.48
MID-CONTINENT			
Kans.-Okla.	$2.25	$2.25	$2.00
Burkburnett*	2.00	...	....
Healdton	1.20	1.45	1.20

*Magnolia still paying $2.25.

TEXAS FIELDS

North Texas

Electra	$2.25	$2.25	$2.00
Henrietta	2.25	2.25	2.00
Corsicana light	2.25	2.25	2.00
Corsicana heavy	1.05	1.30	1.05
Strawn	2.25	2.25	2.00
Moran	2.25	2.25	2.00
Ranger	2.25	2.25	....
Gulf Coast			
Spindletop	$1.00	$1.80	$1.05
Goose Creek	1.00	1.80	1.00
Sour Lake	1.00	1.80	1.00
Humble	1.00	1.80	1.00
Batson	1.00	1.80	1.00

	Nov, 11 1919	Jan. 1, 1919	Jan. 1 1918
Saratoga	1.00	1.80	1.00
Dayton	1.00	1.80	1.00
Columbia	.75	1.00	....
LOUISIANA FIELDS			
Caddo, above 38°	$2.25	$2.25	$2.00
De Soto, above 38°	2.15	2.15	1.00
Caddo, 35°	2.15	2.15	1.90
Caddo, 32°	2.10	2.10	1.85
Caddo, heavy	.75	1.55	1.00
Crichton	1.75	1.75	1.50
WYOMING			
Elk Basin	$1.85	$1.85	....
Grass Creek	1.85	1.85	....
Big Muddy	1.50	1.50	....
Salt Creek	1.50	1.50	....

CALIFORNIA

Effective June 10, 1919, Standard Oil Company offers the following prices for crude oil at the well:

SAN JOAQUIN VALLEY FIELDS

14 deg. to and including 17.9 deg gravity ..... $1.23 per barrel

18 deg. to and including 18.9 deg. gravity ..... 1.24 per barrel

19 deg. to and including 19.9 deg. gravity ..... 1.25 per barrel and for each increase in gravity of one (1) full degree above 19.0 deg. gravity, up to and inclusive of 36.9 deg. gravity, two (2) cents per barrel additional.

37 deg. to and including 37.9 deg. gravity ..... $1.62 per barrel and for each increase in gravity of one (1) full degree above 37.0 deg. gravity, three (3) cents per barrel additional.

WHITTIER-FULLERTON AND SANTA MARIA FIELDS

16 deg. to and including 17.9 deg. gravity ..... $1.23 per barrel

18 deg. to and including 18.9 deg. gravity ..... 1.24 per barrel

19 deg. to and including 19.9 deg. gravity ..... 1.25 per barrel and for each increase in gravity of one (1) full degree above 19.0 deg. gravity, up to and inclusive of 36.9 deg. gravity, two (2) cents per barrel additional.

37 deg. to and including 37.9 deg. gravity ..... $1.62 per barrel and for each increase in gravity of one (1) full degree above 37.0 deg. gravity, three (3) cents per barrel additional.

N. Y. PETROLEUM EXPORTS FOR SEPTEMBER

	Sept., 1919	Aug., 1919	Sept., 1918
Kerosene, gals.	22,251,790	22,253,140	20,803,634
Value	$3,956,377	$3,895,974	$2,521,425
Lubricating oil, gals.	10,533,394	11,851,961	13,853,125
Value	$3,826,157	$3,906,677	$4,751,449
Gasoline, gals.	9,125,071	9,823,760	7,753,296
Value	$2,323,951	$2,032,717	$1,981,650
Other napthas, gals.	4,611,361	4,971,434	5,957,139
Value	$1,593,921	$1,699,480	$1,980,020
Fuel and gas oil, gals.	2,528,206	124,208	14,654,255
Value	$193,811	$19,989	$1,071,039
Crude oil, gals.	104	1,338,210	29,425
Value	$36	$249,878	$3,885
Totals, gals.	49,049,926	50,922,913	62,850,874
Value	$11,894,253	$11,840,915	$12,309,468

Crude Figures Of U.S. Geological Survey

Below is given a summary of the crude oil movement in the oil fields east of the Rockies for the last 13 months for which figures are available. The figures are those of the United States Geological Survey. They are based on returns from 200 pipe line refining and marketing companies east of the Rockies. Figures are in barrels of 42 gallons.

Marketed production figures include about 98% of the total quantities of petroleum actually brought to the surface, the remaining 2% being crude run to field storage.

Consumption figures are computed from marketed production and stocks and represent about 99% of total quantities of domestic crude moved from the field and consumed, the remainder being oil used by producers for drilling and pumping.

Figures as to stocks include about 95% of the crude above ground, the remaining 5% representing unmarketed oil in private field storage.

Field	Marketed Production 1918-19	Consumption 1918-19	Stocks 1918-19
APPALACHIAN			
August	2,165,000	2,254,000	3,503,000
September	2,089,000	2,157,000	3,435,000
October	2,399,000	2,387,000	3,447,000
November	2,260,000	2,257,000	3,500,000
December	2,408,000	2,204,000	3,704,000
Total 1918	**25,833,000**	**26,244,000**	
January, 1919	2,420,000	2,347,000	3,777,000
February, 1919	2,185,000	1,993,000	3,969,000
March, 1919	2,453,000	2,359,000	4,063,000
April, 1919	2,542,000	2,359,000	4,246,000
May, 1919	2,652,000	2,485,000	4,413,000
June, 1919	2,539,000	2,657,000	4,295,000
July, 1919	2,671,000	2,600,000	4,366,000
August, 1919	2,474,000	2,755,000	4,085,000
LIMA—INDIANA			
August	281,000	320,000	1,357,000
September	239,000	317,000	1,300,000
October	242,000	177,000	1,361,000
November	237,000	260,000	1,208,000
December	246,000	298,000	1,156,000
Total 1918	**3,117,000**	**3,795,000**	
January, 1919	271,000	246,000	1,181,000
February, 1919	274,000	226,000	1,229,000
March, 1919	282,000	251,000	1,260,000
April, 1919	293,000	124,000	1,429,000
May, 1919	324,000	310,000	1,443,000
June, 1919	311,100	227,000	1,527,000
July, 1919	321,000	431,000	1,417,000
August, 1919	306,000	260,000	1,463,000
ILLINOIS			
August	1,127,000	1,322,000	2,586,000
September	1,097,000	1,309,000	2,375,000
October	1,145,000	1,343,000	2,178,000
November	1,018,000	1,150,000	2,177,000
December	1,059,000	1,036,000	2,200,000
Total 1918	**13,403,000**	**14,897,000**	
January, 1919	1,094,000	790,000	2,504,000
February, 1919	940,000	418,000	3,026,000
March, 1919	1,166,000	580,000	3,612,000
April, 1919	1,008,000	797,000	3,823,000
May, 1919	1,120,000	886,000	4,057,000
June, 1919	1,062,000	1,109,000	4,010,000
July, 1919	1,106,000	843,000	4,273,000
August, 1919	1,040,000	1,046,000	4,267,000
MID-CONTINENT			
August	13,931,000	15,906,000	92,135,000
September	13,998,000	16,970,000	89,120,000
October	14,988,000	16,985,000	87,095,000
November	13,784,000	16,692,000	83,275,000
December	13,115,000	16,343,000	80,047,000
Total 1918	**168,085,000**	**186,677,000**	
January, 1919	15,027,000	14,822,000	80,252,000
February	13,211,000	15,356,000	78,107,000
March, 1919	14,629,000	13,553,000	79,183,000
April, 1919	14,048,000	13,664,000	79,567,000
May, 1919	14,492,000	16,407,000	77,652,000
June, 1919	16,613,000	13,754,000	80,511,000
July, 1919	18,680,000	13,158,000	85,421,000
August, 1919	18,251,000	22,223,000	81,454,000
GULF COAST			
August	1,814,000	1,871,000	8,093,000
September	1,884,000	2,424,000	7,549,000
October	1,866,000	1,699,000	7,970,000
November	1,591,000	1,653,000	7,907,000
December	1,695,000	1,366,000	8,238,000
Total 1918	**21,785,000**	**22,101,000**	
January, 1919	1,630,000	1,340,000	8,528,000
February, 1919	1,441,000	1,103,000	8,866,000
March, 1919	1,890,000	1,251,000	9,505,000
April 1919	1,843,000	1,272,000	10,131,000
May, 1919	1,621,000	1,206,000	10,546,000
June, 1919	1,521,000	1,228,000	10,839,000
July, 1919	1,766,000	1,186,000	11,419,000
August, 1919	2,044,000	1,549,000	11,914,000
ROCKY MOUNTAIN			
August	1,180,000	1,065,000	1,094,000
September	1,092,000	1,184,000	1,003,000
October	1,197,000	1,235,000	964,000
November	1,128,000	1,130,000	962,000
December	1,114,000	1,152,000	923,000
Total 1918	**12,617,000**	**12,209,000**	
January, 1919	1,085,000	992,000	1,016,000
February, 1919	990,000	964,000	1,042,000
March, 1919	1,168,000	1,209,000	1,001,042
April, 1919	1,259,000	1,305,000	955,000
May, 1919	1,139,000	1,150,000	944,000
June, 1919	1,131,000	1,108,000	967,000
July, 1919	1,253,000	1,225,000	995,000
August, 1919	1,079,000	1,071,000	1,003,000

They're All Opening Shreveport Offices

Staff Special

TULSA, OKLA, Nov. 8.—"It's just like being in Tulsa, to visit Shreveport." So say the oil men from this city who have visited the southern city, on their trips to look over the Louisiana situation. Most all of the large companies having Mid-Continent executive offices in Tulsa are establishing branch offices at Shreveport, and are jumping into the Louisiana play like they meant business. The universal opinion of all oil men here is that Louisiana has the real "oil sand," and that her producing wells are going to be long lived, as well as being exceptionall productive, and a lot of the men who trod easily on the Stephens and Eastland county Texas acreage because of the fact that the wells there produce from the lime rather than the real oil sand, are not afraid of Louisiana.

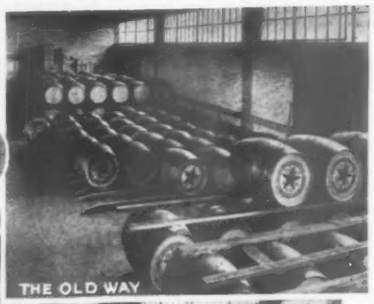
The Oklahoma Producing & Refining Company has opened offices there. The Sinclair Oil Company of Louisiana is well established in its offices at Shreveport, with J. P. Flanagan, president of that branch of the Sinclair interests in charge, and Arthur Lippa, assisting him as vice president. The Cosden people have opened offices there also, with W. D. Reynolds in charge, and W. S. Parks assisting. Parks used to be in the newspaper game in Tulsa. The Gladys Belle Oil Company, which got in on the ground floor with several good blocks of acreage between Homer and the Monroe gas field prior to the discovery of the prolific deep sand at Homer, have offices at the Louisiana oil capital. J. E. Head has offices at Shreveport and is taking care of the Skelly Oil Company business. Others interested there include Frank Phillips, of the Phillips Petroleum Company; Waite Phillips, Colonel C. E. Suppes, Merle V. Cadman, Victor Martin, H. A. Wakefield and many others.

HOUSTON, Nov. 10. — Palmer Hughes, who was formerly with the Union Petroleum Company, and later with a number of refineries in the Mid-Continent field, has sold his interest in the LaPorte Refining Company and with George B. Monroe, of Houston is building a lubricating refinery.

Construction has commenced on the Houston Ship Channel and the first unit will be completed about the first of the year. The company will have a complete barreling plant to handle both domestic and export business. Their offices are 303 Lumberman's National Bank Building, Houston.

LONDON, Nov. 8.—The American Chamber of Commerce in London learns that the Cunard Company, which has under construction half a million tons intends to employ a number of oil-driven liners on the London-New York route. The chamber states that preparations have been made for the establishment of a great oil depot at Belfast. The wharfage to be provided will accomodate oil tankers ranging from 10,000 to 20,000 tons and the depot will be in close proximity to the Belfast Corporation's new electricity station.

Stretching Storage Space



The Economy Tiering Machine being used in conjunction with barrel rack

The wasteful methods of storing merchandise are fast going out of practice. In their stead the Economy System of Storage Handling is saving space, saving time, saving labor and, therefore, saving money. Where boxes, crates, bales, bags, etc., were piled by hand—where barrels were stored in only one or two tiers, lest the heavy weight of added tiers cause leaks and prevent quick accessibility, the Economy System has more than earned its name.

Today Economy portable elevators and storage racks are meeting the world-wide need for efficient storage systems. Space that has always been considered impossible to use is now earning its share of the cost. In hundreds of industrial plants the efficiency of men has been increased as much as fourfold—in some even more.

Whatever your storage problem may be—Economy Storage Engineers can show you the one economical method.

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MEMPHIS, TENN., Southern Express Bldg.
NEW ORLEANS, LA. 403 Board of Trade Bldg.
ST. PAUL, MINN. - - 379 Jackson St.
SAN FRANCISCO, CALIF. 328 Sacramento Avenue
LOS ANGELES, CALIF. Union Oil Bldg.

Bureau of Mines Statistics on Refinery Production

Output of Refineries in the United States for June-August, 1919, and total output for 1918, shown by Districts as compiled by the United States Bureau of Mines

1918-19	East Coast (N.Y., Phila. and Balto.)	Pa., N. Y., E. Ohio and W. Va.	W. Ohio, Ind., Ill., Ky. and Tenn.	Oklahoma and Kansas	Texas and Louisiana	Colorado and Wyoming	California	Total	Daily Average
Crude Run (bbl.) June...	6,389,623	1,735,649	2,080,071	5,046,590	7,034,825	1,153,957	5,480,049	28,920,764	964,125
July...	6,753,411	1,833,503	2,654,687	5,346,946	7,510,211	1,126,343	5,977,421	31,202,522	1,066,535
Aug....	6,833,632	1,917,170	2,926,068	5,111,715	8,197,579	936,296	6,439,597	32,362,057	1,043,937
Total, 1919.....	**46,493,267**	**13,796,228**	**17,762,884**	**39,864,620**	**56,499,629**	**8,345,018**	**47,840,124**	**227,594,770**	.....
Total, 1918.....	**64,119,528**	**18,804,510**	**22,184,148**	**60,805,183**	**81,733,167**	**11,913,125**	**66,454,969**	**326,024,630**	**893,218**
Re-run (bbl.) June...	619,519	121,028	507,005	680,944	739,785	491,863	831,865	3,992,009	133,067
July...	392,066	148,446	835,458	355,932	547,614	539,759	943,682	3,762,957	121,386
Aug....	359,973	126,353	720,244	271,966	574,306	739,690	924,024	3,713,556	119,792
Total, 1919.....	**4,830,149**	**1,243,383**	**6,847,404**	**5,122,881**	**3,193,492**	**4,385,463**	**6,034,458**	**31,655,230**	.....
Total, 1918.....	**7,330,083**	**1,992,336**	**7,987,413**	**9,378,896**	**5,579,957**	**4,627,512**	**13,669,007**	**50,565,204**	**138,535**
Gasoline (gals) June...	63,103,531	21,669,372	59,634,838	75,429,248	66,130,421	17,767,128	34,602,447	338,336,985	11,277,899
July...	69,410,487	23,441,136	52,595,882	73,520,621	65,487,653	18,727,814	39,308,164	342,491,751	11,048,121
Aug....	55,596,510	24,349,274	54,728,156	67,856,519	67,219,567	18,328,179	38,767,962	326,846,167	10,543,425
Total, 1919.....	**511,768,855**	**181,714,415**	**375,872,970**	**574,089,160**	**495,564,866**	**155,610,947**	**277,856,448**	**2,580,492,629**	.....
Total, 1918.....	**718,720,111**	**241,639,462**	**460,795,843**	**865,799,574**	**636,856,670**	**212,108,809**	**434,392,494**	**3,570,312,963**	**9,781,679**
Kerosene (gallons) June...	61,560,627	15,575,094	8,314,045	28,982,747	44,851,573	4,671,841	15,018,297	178,974,224	5,965,807
July...	62,988,760	17,186,014	14,846,288	32,641,500	48,741,261	6,817,526	22,505,940	205,727,289	6,636,364
Aug....	71,128,297	17,332,319	15,186,509	33,220,826	52,776,053	5,714,215	24,144,669	219,502,888	7,080,738
Total, 1919.....	**449,851,116**	**127,980,339**	**131,772,043**	**253,300,818**	**349,899,110**	**36,901,947**	**131,272,282**	**1,470,976,132**	.....
Total, 1918.....	**485,559,229**	**136,951,334**	**187,070,255**	**415,222,396**	**435,281,246**	**62,695,223**	**102,580,454**	**1,825,360,137**	**5,000,987**
Fuel, Gas Oil (gals) June...	109,886,293	12,413,819	39,533,139	110,611,686	160,047,039	24,713,320	175,000,509	632,205,805	21,073,527
July...	106,910,064	15,056,182	39,784,721	104,289,190	156,665,813	23,948,540	191,530,959	638,185,469	20,586,628
Aug....	110,929,314	13,560,663	44,612,837	97,203,016	189,760,905	21,992,230	207,643,496	685,702,461	22,119,434
Total, 1919.....	**742,404,090**	**105,967,353**	**316,379,548**	**828,526,840**	**1,236,360,962**	**180,568,434**	**1,524,119,614**	**4,915,326,546**	.....
Total, 1918.....	**1,118,998,731**	**201,775,157**	**344,497,236**	**1,344,145,229**	**1,934,441,119**	**243,755,929**	**2,133,784,156**	**7,321,397,557**	**20,058,623**
Lubricants (gallons) June...	20,490,501	14,739,920	4,064,492	9,343,638	10,085,495	156,206	5,756,301	64,636,153	2,154,538
July...	22,147,148	15,021,807	8,326,118	5,391,043	10,241,334	261,262	5,648,702	67,037,414	2,162,497
Aug....	27,612,913	16,085,637	8,874,512	5,430,008	9,727,494	215,412	4,974,238	72,920,214	2,352,265
Total, 1919.....	**173,998,344**	**117,495,108**	**69,227,743**	**69,804,971**	**71,366,045**	**1,733,176**	**46,276,454**	**549,861,841**	.....
Total, 1918.....	**257,412,655**	**182,864,252**	**97,460,092**	**109,876,505**	**123,258,451**	**3,653,559**	**66,940,253**	**841,465,767**	**2,305,386**
Wax (lb.)..... June...	17,362,055	6,587,431	2,111,456	2,584,255	5,967,991	78,567	126,349	34,818,104	1,160,603
July...	15,664,156	6,312,678	6,751,823	2,428,471	6,886,234	70,031	157,047	38,270,440	1,234,530
Aug....	9,546,428	7,568,389	7,897,571	2,497,837	2,997,554	284,323	147,403	30,939,505	998,049
Total, 1919.....	**129,472,838**	**58,343,166**	**48,212,527**	**29,590,758**	**48,188,260**	**1,531,945**	**891,677**	**316,430,171**	.....
Total, 1918.....	**215,791,443**	**86,432,928**	**78,020,865**	**48,726,352**	**73,145,391**	**2,259,346**	**768,032**	**505,144,357**	**1,383,957**
Coke (ton)..... June...	16,635	1,710	7,358	3,834	9,927	1,898	.....	41,362	1,379
July...	18,914	867	11,685	2,721	10,935	1,887	.....	47,009	1,516
Aug....	19,648	1,448	13,554	4,563	8,944	1,585	.....	49,742	1,605
Total, 1919.....	**172,806**	**11,821**	**90,724**	**38,121**	**80,561**	**16,243**	.....	**410,288**	.....
Total, 1918.....	**222,644**	**19,758**	**137,759**	**56,659**	**107,931**	**14,912**	.....	**559,663**	**1,533**
Asphalt (ton)... June...	35,687	33	402	22	21,276	.....	15,745	73,165	2,439
July...	37,930	64	8,163	.....	15,593	.....	18,455	80,205	2,587
Aug....	45,725	116	5,355	6	21,060	2	18,442	90,706	2,926
Total, 1919.....	**247,865**	**1,114**	**55,607**	**172**	**112,109**	**20**	**99,997**	**414,882**	.....
Total, 1918.....	**270,172**	**2,900**	**71,942**	**10,434**	**145,887**	**40**	**106,593**	**607,968**	**1,666**
Misc. (gal.)..... June...	8,075,638	7,512,922	26,039,822	10,333,669	26,371,605	18,396,048	24,770,314	121,500,018	4,050,000
July...	7,333,494	5,487,154	15,792,511	11,039,758	38,408,746	17,248,736	21,264,693	116,575,092	3,160,487
Aug....	5,883,537	6,865,351	13,603,566	10,184,756	28,921,039	21,344,560	23,610,635	110,413,444	3,561,724
Total, 1919.....	**51,493,140**	**50,052,396**	**90,234,562**	**65,109,529**	**122,442,559**	.....	**121,572,707**	**234,174,943**	.....
Total, 1918.....	**78,617,550**	**36,308,371**	**43,476,748**	**68,125,328**	**352,028,239**	**136,475,995**	**571,678,155**	**1,286,710,383**	**3,525,234**
Loss (bbl.)..... June...	406,445	109,946	142,257	170,746	260,974	68,311	157,069	1,315,748	43,858
July...	357,160	154,598	215,775	282,206	289,939	57,767	143,539	1,480,984	47,774
Aug....	357,411	140,659	228,613	256,575	295,400	51,837	135,354	1,465,849	47,285
Total, 1919.....	**2,717,058**	**881,607**	**1,443,435**	**1,841,519**	**1,896,788**	**510,754**	**1,158,983**	**10,450,204**	.....
Total, 1918.....	**3,631,988**	**1,187,926**	**1,890,377**	**2,525,447**	**3,019,166**	**732,931**	**1,568,790**	**14,556,625**	**39,881**

Stocks on Hand at Refineries at close of each month.

1918	Crude Oil Bbls.	Re-run Bbls.	Gasoline Gals.	Kerosene Gals.	Gas & Fuel Gals.	Lubricating Gals.	Wax Pounds	Coke Tons	Asphaltum Tons	Misc. Gals.
Dec. 31.	15,749,771	1,300,018	297,326,983	380,117,829	659,001,357	138,853,574	199,657,542	22,605	76,858	477,783,740
1919										
Jan. 31..	15,380,185	1,088,264	383,212,692	332,393,181	646,411,414	158,370,431	189,064,329	28,732	93,027	483,942,833
Feb. 28..	14,820,601	1,176,483	458,449,187	303,062,436	692,816,000	152,297,163	209,908,707	33,716	102,547	500,413,825
Mar. 31.	15,106,361	1,121,963	546,062,429	294,677,623	749,067,806	165,495,254	235,588,922	37,642	113,949	468,035,524
April 30.	15,184,844	980,597	593,616,170	276,356,837	807,895,498	170,122,088	249,351,315	45,601	118,863	480,607,249
May 31..	16,372,314	781,644	594,035,688	244,635,631	788,740,572	173,754,109	260,137,244	41,677	121,524	485,574,251
June 30.	16,775,723	1,270,470	593,896,610	252,542,434	811,790,637	175,384,775	254,705,414	43,407	108,384	452,475,704
July 31 .	15,304,915	1,034,976	514,919,358	279,855,061	817,809,519	173,884,303	255,207,227	40,194	98,372	479,127,372
Aug. 31..	15,131,549	932,648	434,531,446	296,065,646	830,329,785	170,572,819	256,133,738	43,615	97,276	494,859,576

OIL FINANCE

Elections Steady Security Market

IN so far as the elections of the week had any influence on the stock market, the effect was steadying, and even satisfactory, due to the pronounced repudiation of radical policies over the country. Other disturbing factors like the steel and coal strikes had been previously discounted. There were no outstanding features in oil issues, with the single exception of the Sinclair stocks, which showed marked advances and considerable trading. Wall Street's attention is just now mainly directed toward the company's Cuban enterprises, which are making big strides. It develops that instead of the syndicate being obliged to take on the recent new issues in large part, the old stockholders, as a matter of fact, have subscribed for more than 75 per cent of the new stock. Transcontinental Oil has been behaving well and shows an upward tendency.

Whole Industrial List Moves Forward

Under the leadership of Sinclair stocks, the entire list of industrials took a forward stride, with Foundry, Rubber and Motor issues a good second. The same optimism which prevailed last week regarding the satisfactory outcome of the mining strike was evident in the general activity in transactions. Trading on the New York Exchange so far this year has broken all records. From January 1 up to November 1, 1,265,254,900 shares, or a daily average of 1,087,000 shares, constituted the total trading.

Big Financing For the Oil Corporations

Elsewhere in this issue are detailed some of the recent re-financing of oil companies, in large part due to heavy increases in volume and growing demand for foreign account, especially in fuel oil. That the market has absorbed within recent months over $200,000,000 of new oil securities is significant of the strength of the nation's finances and the substantial character of the oil business itself.

Cosden To Increase Stock By $10,000,000

Staff Special

TULSA, OKLA., Nov. 9.—A special meeting of the stockholders of Cosden & Company, has been called for November 12, at Wilmington, Delaware, for the purpose of acting on the recommendation of the board of directors of the concern, to increase the common stock of the company from $25,000,000 to $35,000,000. This action was deemed necessary by the company, in order to carry out its plan of declaring a stock dividend of so much a quarter, in addition to the regular cash quarterly dividend. For the last quarter, a 10 per cent stock dividend was declared in addition to the cash dividend of 2½ per cent.

Operations of Cosden & Company continue very pleasing. 1,610 carloads of refined products were shipped out of the big refinery at West Tulsa during September, a daily average of 53 carloads. Approximately 80 per cent of this was gasoline. It is marketing its stuff thru the Union Petroleum Company and the Western Petroleum Company, the Union making big shipments to the export docks located at Marcus Hook, Pa., and Westwego, La. The refinery is running approximately 25,000 barrels of crude daily, obtaining it from the Cushing, Okmulgee county, Muskogee county, Tulsa county, and Osage county oil fields. Approximately 10,000 barrels of crude is being obtained daily, from the Osage reservation, where the company completed, less than two months ago, a 6-inch pipe line, which terminates at a point five miles north of Hominy.

Plan Merger With Wichita Company

Staff Special

TULSA, Nov. 8.—A special meeting of the stockholders of the Union Oil Company, of Wichita, has been called for November 12, at which stockholders will be asked to ratify the motion of the directors to approve the merger of the concern into the Mohegan Oil Corporation. The Mohegan Oil Corporation is a newly organized concern capitalized at 500,000 shares of no par value, 150,000 shares of which are to be issued at $25, and the remaining 350,000 shares to remain in the treasury for future expansion.

When the Union company is taken over, and other negotiations in progress are completed, it expects to have 37,500 acres of well selected oil lands in Oklahoma, Kansas, Texas and Louisiana, with 475 barrels daily oil production and five gas wells making 124,000,000 feet of gas daily. Percy N. Furber, president of the Oil Fields of Mexico Company, which sold out to the Mexican Eagle, the Mexican Eagle later to be taken over by the Dutch Shell, is president of the Mohegan Oil Corporation.

The Union Oil Company entered the Mid-Continent with a rush, shortly after its organization, and the power behind the throne purchased too much acreage for it to handle successfully. With much likely-looking acreage on hand, it is unable to drill it, and the merger into the Mohegan company offers a solution. The merger, if made, will be made on the basis of Union being worth 35 cents per share and Mohegan $25. Stockholders of the Union are being offered the opportunity to convert their holdings into cash for 35 cents a share or into Mohegan.

The Crescent Pipe Line Company declared the regular quarterly dividend of 75 cents, payable December 15 to stock of record November 22.

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Big Oil Companies Refinancing For Home And World Trade

NEW YORK, Nov. 10.—To meet the rapidly increasing demand for oil products at home and abroad, especially fuel oil, several of the largest oil companies announced during the week heavy increases in capital stock.

Most important of all is the re-classification of stock of the Pan-American Petroleum & Transport Company, which took place on October 22. Of the total authorized capital of $125,000,000, $70,000,000 unissued common was classified as Class B common stock, differing from the regular common only as to its non-voting power. All holders of any class of record on November 25 may subscribe to the extent of 10 per cent of their holdings for $100 for each share of a par value of $50. Holders of Mexican Petroleum Company, Ltd., common may exchange their stock up to November 20 for the above Class B common.

The new stock is to be underwritten. From the proceeds the company will call in for redemption all outstanding securities having priority over common and Class B stock. Heavy reductions of these securities have already been made. Important extensions of business and plant have been: The organization of the British Mexican Petroleum Company, Ltd., with a subscriped capital of 2,000,000 pounds sterling, the Pan-American subscribing one-half; the purchase of sites for oil-distributing stations at Glasgow, Liverpool, Manchester Ship Canal, Avonmouth, Southampton, Plymouth, Hull and Newcastle-on-Tyne, and for a refinery on the Manchester Ship Canal; the installation of 54 storage tanks of a combined capacity of 55,000 barrels; and the purchase and chartering of 18 additional tank steamers, bringing the tank fleet up to 46 vessels of over 400,000 tons carrying capacity.

Other increases have been 800 new tank cars, 100 miles of 8-inch pipe line and 50 per cent addition to the capacity of two refineries. The company, besides its present engagements, is experiencing a heavy demand for fuel oil for export to South American countries.

A proposition to increase the capital stock of the Chesebrough Manufacturing Company from $1,500,000, all common, to $2,500,000, $1,000,000 7 per cent cumulative non-voting preferred, par $100, redeemable at 112½ after January 1, 1923, is to be voted on November 17. Of the preferred issue, $500,000 is to be offered to present stockholders in proportion to their holdings, the balance to remain for future needs.

November 17, stockholders of the Cities Service Company will vote on increasing the capital stock from $200,000,000 to $300,000,000: $150,000,000 preferred, $100 par, callable at 112, $6,000,000 preferred BB stock, $100 par, callable at 106, $40,000,000 preference B stock, $10 par, callable at $10, and $50,000,000 common, $100 par.

The Humble Oil & Refining Company, 51 per cent Standard, will increase its stock from $8,200,000 to $25,000,000. Of the increase, $400,000 will be set aside for employes. The balance, $16,400,000, will be offered to shareholders of record as of October 28 on the basis of $10,250,000 Series A, $100 par, in the proportion of 1¼ shares for each share now held, and $6,150,000 at $250 a share in proportion of one-fourth of one share for each share held.

Stockholders of the Indian Refining Company have just voted an increase to $14,000,000, $100 par, of which $3,000,000 is present preferred, $8,000,000 is to be Class B preferred and $3,000,000 present common outstanding, while a further 15,000 shares ($1,500,000) of common may be issued from time to time upon surrender of the above $3,000,000 preferred on five days' notice.

Another oil leader to take up the matter of stock increase is the Tide Water Oil Company. The present stock outstanding is $33,087,000. Just what the increase will be, and the manner of classification, has not yet been announced. Tide Water's gross sales have doubled since 1916, standing at $34,088,250 in 1918. Cash dividends of 19 per cent were disbursed in 1918 and in 1917 17 per cent cash and 10 per cent stock dividends were paid. So far this year 10 per cent cash dividends have been disbursed. The company has nine subsidiaries.

Between January 1 and October 15, 1919, new capital issues introduced by oil companies have aggregated over $223,000,000, as follows: Sinclair Consolidated, $50,000,000; Royal Dutch, $34,363,000; Union Oil Company, $20,080,000; Shell Transport & Trading Company, $19,113,000; Skelly Oil Company, $15,000,000; Magnolia Petroleum Company, $14,667,000; White Oil Corporation, $10,500,000; British-Mexican Petroleum Company, $10,000,000;; Transcontinental Oil Company, $10,000,000; Union Oil Company of California, $6,428,500; Houston Oil Company; $5,000,000; Invincible Oil Corporation, $4,300,000; Marland Refining Company, $3,977,860; Manhattan Oil Company of Delaware, $3,800,000; Woodburn Oil Company, $3,000,000; Phillips Petroleum Company, $3,359,160; American Oil Engineering Company, $2,200,000; Margay Oil Corporation, $1,800,000; Sapulpa Refining Company, $1,400,000; Texas & Pacific Coal & Oil Company, $1,000,000; Brazos Oil Corporation, $1,000,000; Guffey-Gillespie Oil Company, $1,000,000; White Eagle Oil & Refining Company, $771,500; Pierce Oil Corporation, $750,000; Spencer Petroleum Corporation, $625,000; Hercules Petroleum Company, $600,000.

Humble Increases Capital To $25,000,000

Staff Special

FORT WORTH, Nov. 9.—Since the Tuesday's meeting of the Humble Oil & Refining Company in Houston, at which it was voted to increase the capital stock from $8,200,000 to $25,000,000, it has become known that 4,000 shares are to be offered employes at a price to be fixed by directors, and that one and a fourth shares will be offered stockholders for each share now held at par, to be paid for before December 2nd next. Three-fourths of a share for each share now issued will be offered present stockholders at $250 a share. The additional stock offered at par will be known as Series A, and that offered at $250 a share as Series B.

President R. S. Sterling points out in his message that the Humble Oil & Refining Company and the Humble Pipe Line Company are one and the same in the corporate sense, so that no attempt is made to distinguish between them. His statement further points out that it is expected to complete the Humble 8-inch pipe line from Ranger to the Gulf coast by January 1, and that the Baytown refinery which it is hoped to have in operation six months later will have initial charging capacity of 10,000 barrels with the ultimate intention of increasing it to 60,000 barrels.

In addition to refineries already operated and casinghead plants built or building at Burkburnett, the announcement tells of a skimming plant in course of erection near the Comyn tank farm in Comanche county, where topping of crude from the Ranger territory will be practiced before running to storage.

Humble Oil & Refining Company last February sold a half interest in the corporation to Walter C. Teagle, as an individual, but on behalf of the Standard Oil Company of New Jersey. The capital stock being doubled at the time of the stockholders' meeting that approved the transaction .

Kentucky Company Obtains Charter

A charter for the Superior Oil Corporation, Kentucky enterprise, was recently secured in Delaware. The authorized capital is 300,000 shares of no par value, outstanding 150,000 shares, 80,000 of which have been placed in escrow for a period of five years for the purpose of insuring the continuance of the present management.

Consent of 80 per cent of present holders must be obtained for any further increase of stock. The recent issue of 70,000 shares at $20 is understood to have been oversubscribed. The company controls by contract a group of 25 producing oil and gas leases, containing about 2,479 acres, in the Estill and Big Sinking districts of Kentucky.

Settled production is 1,132 barrels per day gross, 987 net. It is estimated that within a year the company will have 60 wells in operation. The officers are: George A. Evalenka, president, New York, president Bi-Continent Trading Corporation; Robert M. Catts, first vice president, New York; Percy D. McConnell, second vice president, Tulsa; W. Frederick Suender treasurer, Cincinnati; Arnold L. Davis, New York, secretary; Charles B. Wing, assistant secretary, Cincinnati; W. F. Schleiter, Pittsburgh, J. Terry West, New York, directors.

The Middle States Oil Corporation will cut a melon December 1 in the form of a 10 per cent stock dividend to stockholders of record November 20, based on low market price November 19. The Dominion Oil Company, a majority of whose common stock is owned by the Middle States Oil Corporation, has been organized under the association laws of Texas, with $2,000,000 6½ per cent cumulative preferred, $400,000 preferred, and $1,800,000 common. It will operate the oil interests in the Osage nation, Oklahoma, and in the Burkburnett field, Texas, which it has acquired.

How Oil Shares Moved Last Week

NEW YORK STOCK MARKET

	Par Value	High 1919	Low 1919	Week's Sales	Price Nov. 1	Week's High	Low	Price Nov. 7
Caddo Oil & Refg	$100	54½	30	4,500	33½	33¾	32	32½
Cal. Petroleum	100	53⅜	20⅜	7,600	52⅝	53⅞	50⅞	51½
Mex. Petroleum	100	258¾	162¾	58,500	251	255½	244½	247¾
Middle States Oil	10	68	32	23,800	62	64¼	62	62
Ohio Cities Gas	25	61⅜	35¾	41,300	53½	54⅜	53½	53⅜
Okla. Prod. & Refg	5	13½	8	17,600	10	10½	9⅞	9⅞
Pan. Amer. Pet	50	133¼	67	38,700	131½	133¼	130	128⅜
Pierce Oil	25	31¾	16	9,800	20½	21⅝	20⅝	20¾
Royal Dutch	13.15	120½	70¾	No sales recorded.				
Sinclair Consol	No par	64½	44½	507,400	61	64⅛	61¼	59⅞
Texas Co	100	345	184	28,000	332½	338	332	332
Transcontinental	No par	61⅜	42¾	133,000	56¾	60¼	57½	59¾

NEW YORK CURB MARKET

Cities Service Bankers	10	50½	35	5,300	48	48	47¾	48
Commonwealth	No par	63	37	3,700	50	50	49	50
Continental Refg	10	16½	6	No sales recorded.				
Cosden & Co	5	12⅜	6⅞	7,200	10⅝	11	10½	10⅞
Elk Basin	5	11½	6	700	.....	8⅞	8½	8⅜
Federal Oil	5	4	2	9,900	3	3	2⅞	3
Glenrock Oil	10	8¼	3⅜	9,300	4	4⅛	3⅜	4
Guffey-Gillespie	No par	32¼	18	17,100	28⅜	32¼	28⅜	32
Houston Oil	100	165	75	1,100	.....	165	157	158
Home Oil	25	40½	10	700	16	.....	.....	16
Int. Petroleum	5	39	16¾	4,100	38	39	37	37¾
Invincible Oil & Refg	.....	45¾	30½	3,500	.....	45¾	42½	43
Island Oil & Trans	10	9¼	6⅜	16,800	7⅝	7⅝	7¼	7⅜
Marland Refg	5	7¾	5⅜	No sales recorded.				
Merrit Oil	10	35	20	2,800	.....	25	24	.....
Midwest Refg	50	196	124	1,050	.....	171	167	168
Ohio Ranger	1	2⅛	⅞	No sales recorded.				
Pennok Oil	10	17⅜	11¼	1,300	13¾	13¾	13¼	13¼
Phillips Pet	10	81	58	2,400	77½	79	76	77
Pitts-Tex. Oil	5	15½	8¾	No sales recorded.				
Prod. & Refiners	10	9⅞	7	10,100	.....	9⅞	8⅞	9⅞
Sapula Refg	5	9⅛	7	100	7½	7½	.....	.....
Salt Creek Prod	25	65½	38	6,900	53½	54	52¾	.....
Shell Trans	*5	83¾	66	17,700	81½	83¾	81¼	.....
Simms Pet	No par	45⅜	24½	3,700	.....	44	40¼	43¾
White Eagle	No par	27	20½	No sales recorded.				

*Pounds Sterling.

PITTSBURGH STOCK MARKET

Arkansas Natural Gas	100	420	20	11,065	238	*420	239	415
Arkansas Nat. Gas pfd	100	103	60	340	100	103	100	103
Barnsdall Cor	25	50¼	31	1,932	47¾	47¾	47	47
Columbia Gas & Elec	50	67½	39⅞	.....	64⅜	No sales recorded.		
Lone Star Gas	100	300	170	40	170	171	170	170
Man. Light & Heat	50	60	48½	935	58½	59¼	58½	59¼
Marland Refining	5	8⅛	6⅞	6,683	7¾	7⅝	7⅛	7¼
Ohio Fuel Oil	1	35	16	9,175	29	*35	29	32¾
Ohio Fuel Supply	25	54¾	41½	950	52¾	53	52	53
Oklahoma Nat Gas	25	45	26⅝	3,441	42½	44	42½	44
Oklahoma Prod. & Rfg	5	13¼	8¼	545	10	10¼	10	10
Pittsburgh Oil & Gas	5	18½	8	705	13¾	14	13½	14
Riverside Eastern Oil	5	6½	¾	2,805	6	6¼	5⅞	6¼
Riverside Eastern Oil pfd.	5	5⅛	2¾	No sales recorded.				
Riverside Western Oil	25	40¼	9	375	37¾	39	38	39
Riverside Western Oil pfd	25	25	13¾	No sales recorded.				
Union Natural Gas	100	135	122	150	128½	128½	127¾	128

PITTSBURGH CURB MARKET

Allied Oil	1	1½	⅝	18,000	1	1⅛	1	1⅛
Atlantic Petroleum	5	4¼	3⅞	200	4	4	4	4
Boston-Wyoming	1	1.15	1.02	3,800	.....	*1.15	1.02	1.15
Duquesne Oil	5	12¼	7½	6,300	10¾	11¾	10⅞	11¼
Dominion Oil	25	37	34½	200	35	37	35	37
Gulf Oil Cor	100	535	375	.....	535	No sales reported.		
Guffey-Gillespie Oil	No par	33¼	19	22,300	28¾	*33¼	30	33¼
Homer Union Pet	1	2	1¼	11,700	.....	2	1¼	1½
Kay County Gas	1	3⅝	2	5,600	3	3⅜	3	3
Livingston Oil	1	2¾	2¾	800	.....	2¾	2¾	2¼
Low-Tex. Oil	1	4¾	2	2,250	4	4	3¼	3½
Mexican Panuco	10	27	23	200	27	24	24	24
Mexican-Wyoming	1	2.45	.60	135,000	1.40	*2.45	1.35	2.40
Omar Oil & Gas	10	14¼	6¼	2,000	12	11½	11	11
Pittsburgh-Texas Oil	5	17½	4½	200	.....	17½	17	17
Salt Creek Cons	10	27	20½	3,730	23	23½	22½	23½
Rebel Oakes Oil	10	36	15	350	.....	36	15	36
Skelly Oil	10	14	13	.....	13¾	No sales reported.		
States Oil Cor	5	233	150	No sales reported.				
Tropical Oil	25	24¾	13	1,050	20½	18	17½	17½
Tropical Oil rights	.....	2¾	2½	250	.....	2¾	2½	2¾

*New high record.

Standard Oil Stocks

Standard Oil securities are dealt with to only a small extent on the New York curb market, the great majority of sales being made over the counters of investment bankers. For this reason no record can be obtained of the total volume of sales from day to day to indicate the activity of any particular stock. Below are bid and asked quotations prevailing on the curb market at the close of business on the date given, the same quotations prevailing in the majority of unrecorded transactions:

	Nov. 7 Bid	Asked	1919 High	Low
Anglo American	35½	36	35½	16½
Atlantic Refg	1,500	1,550	1,550	1,030
Atlantic Refg. pfd	110	112	112½	107
Buckeye Pipe	95	98	106	90
Continental Oil	580	600	710	490
Galena Signal	93	98	143	82
Illinois Pipe	185	190	200	160
Ohio Oil	380	385	405	315
Penn-Mex	80	82	84	52
Prairie Oil & Gas	710	725	815	620
Prairie Pipe	295	300	324	260
South Penn	345	350	345	330
S. O. California	300	305	328	258
S. O. Indiana	765	780	850	710
S. O. Kansas	590	610	679	520
S. O. Kentucky	490	510	530	340
S. O. New Jersey	723	728	795	668
S. O. New Jersey, pfd	113½	114½	118	109⅝
S. O. New York	438	443	440	307
S. O. Ohio	515	530	545	460
Union Tank Line	128	133	146	106
Vacuum Oil	440	450	490	393

UNLISTED SECURITIES

By Carl H. Pforzheimer & Co.

	Par Value	Nov. 7 Bid	Asked	1919 High	Low
Texas Pacific	100	1750	1820	1980	145
Magnolia Pet. Co	100	460	480	480	295
Humble Oil & Refg	100	*325	335	625	595
Humble Warrants, A		225	235	....	....
Humble Warrants, B		75	80	....	....
Humble Rights		340	360	....	....
Gulf Oil Corp	100	520	540	520	36
Tide Water Oil	100	270	280	250	207

*Ex-rights.

MISCELLANEOUS STOCKS.

The following are bid and asked prices ruling at the close of business on the date given on the Cleveland stock market, with the high and low marks reached so far this year:

	Par Value	Nov. 7 Bid	Asked	1919 High	Low
Cities Service	100	454	456	454	284
Cities Service pfd	100	60	64	82⅛	61
National Refg	100	....	380	380	186
National Refg. Pfd	100	...	128	131	124
Paragon Refg	100	28	28¼	35⅛	26
Paragon Refg. pfd	100	100½	103	103	100